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USSR REPORT
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Except where indicated otherwise in the table of contents the following is a complete translation of the Russian-language monthly journal VOYENNO-ISTORICHESKIY ZHURNAL.

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ORGANIZING COOPERATION OF NAVAL FORCES WITH GROUND TROOPS IN DEFENSE OF NAVAL BASES, PORTS, CITIES

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 11, 1986 (signed to press 27 Oct 86) pp 19-27

[Article by Candidate of Historical Sciences, Docent, Capt 1st Rank Ye.Ya. Dvorianov, and Capt 1st Rank V.G. Oppokov published under the rubric "Soviet Military Art"; the article was written from the experience of the first period of the Great Patriotic War]

[Text] The defense of naval bases, ports and cities was one of the forms of joint operations of the fleet and ground troops during the war years in areas by seas, lakes and rivers. The successful carrying out of this depended largely upon continuous and close cooperation between the field forces, formations, units and subunits involved in the defensive fighting. The organizational level and viability of this cooperation were determined by several factors. The most important of these were: the preliminary concentration of troops and naval forces and their subsequent reinforcing on the probable axes of the enemy advance for retaining certain areas (points), for causing maximum losses to the enemy, and for carrying out counterattacks and counterstrikes; the coordinated actions of the various forces (rifle, tank, air, artillery and ship) in terms of time, place and target and their most efficient employment; the presence of unified command and reliable control; the personal qualities, experience and capabilities of the defensive leaders.

The preliminary concentration of the troops and the naval forces supporting their maritime and riverine flanks on the most probable axes of enemy advance and the possibility of subsequently reinforcing these forces assumed particular significance from the very first days of the war. According to prewar views, an attack on the areas and individual points located on the coast, primarily the naval bases, was expected from the air and from the sea. This attack was to be repulsed chiefly from the land, without sufficient readiness of the forces for this. By the start of the Great Patriotic War a majority of the naval bases did not have land defensive fronts which had been prepared in engineer terms and their garrisons experienced a shortage of personnel, equipment and weapons. Thus, in March 1941, from the results of the joint exercises conducted by the Kiev Special Military District and the Black Sea Fleet, serious oversights were detected in organizing the defenses

of Sevastopol from land. The construction of a forward defensive line 12-14 km from the city (around 50 km long and 1.5-2 km deep) was to start only in September. Prior to this there were only two lines: the main (at a distance of 5-10 km) and a rear (at a distance of 2-3 km) the equipping of which was started also in the course of the fighting (4 July 1941). (1) Certain naval bases, for example Liyepaya, did not possess supplies of ammunition, fuel and food which could ensure a protracted defense under the conditions of encirclement from land and blockade from the sea.

The mistakes in organizing the defenses of the naval bases, ports and cities by the ground troops and naval forces led to a situation whereby September, many important points on the coast of the Baltic and Black Seas, the banks of the Danube and Dnieper had been abandoned by our troops or were under the threat of enemy seizure.

The developing situation required the taking of emergency measures. Thus, in September-November 1941, upon instructions of Headquarters Supreme High Command [Hq SHC], additional formations and units of ground troops and the navy were assigned to prevent the landing of enemy assault forces in the Novorossiysk area and to cover the city and port from the sea. New shore units and artillery batteries were organized, the Kerch and Tuapse Naval Bases were established, around them fortified areas were built and strongpoints were established on the coast between the bases. It was planned to establish a defensive line along Rayevskaya, Tsemes Bay, Shapsugskaya. By a decision of Headquarters, Novorossiysk was to be the main base for supplying Sevastopol. (2)

The ability to anticipate a change in the situation and build up success significantly increased the results of the joint actions of the ground troops and naval forces in the course of the defensive battles and operations. This applied particularly to the correct employment of the ship units and subunits. Prompt fire support from the ships had a noticeable impact on the outcome or the length of the defense of one or another area (point) on the coast. Thus, the naval river and lake flotillas played a major role in the defense of many naval bases, ports and cities due to the preliminary setting of specific measures or the issuing of specific tasks to them as well as due to the precise organization and skillful maintaining of cooperation of the ships with the land units and subunits. For example, on 3 September 1941, the Military Council of the Leningrad Front entrusted the transporting of cargo across Lake Ladoga to the Ladoga Naval Flotilla for the besieged city and this lasted up to 3 December. (3) According to the Directive of Hq SHC of 24 July 1942, the Volga Naval Flotilla was put in operational terms under the commander of the Stalingrad Front. The flotilla was given the missions of: providing artillery support for the ground troops on the Stalingrad defensive lines; to prevent the enemy troops from crossing the Volga; supporting the lines of communications from Saratov to Astrakhan and transporting our troops and military freight across the Volga in the aim of strengthening the defenses of Stalingrad; covering the flotilla bases (Stalingrad, Ulyanovsk, Gorkiy, Saratov and Astrakhan). The correctly organized and skillfully maintained cooperation of the naval forces with the front's troops did not lose its continuity and effectiveness even during the most intense days of the battle

on the Volga, when defensive fighting in the city streets commenced in September 1942. (4)

The defensive assumed the greatest activeness when the actions of the different forces were coordinated in terms of time, place and target and they were effectively employed. The plans adopted for combat (an operation) and which, along with all else, worked out the questions of cooperation, set first of all the procedure and methods of actions of the naval forces and land formations and units as well as the reinforcements for the main stages of the defensive. Wherever possible at each stage provision was made for several variations of actions by the different naval forces and ground troops depending upon the probable directions of the enemy's main thrust; the actions of each echelon of the battle formation of a subunit, unit and formation were coordinated in terms of place, time and target.

For example, here is how this work was carried out in the defense of Liyepaya. (5) On 22 June 1941, the commander of the 67th Rifle Division, Maj Gen N.A. Dedayev, who was providing overall leadership of the defenses, arrived at the command post of the naval base. Here he acquainted the naval base commander, Capt 1st Rank M.S. Klevenskiy, with his plan according to which the efforts of the base's units and subunits were to be directed at the immediate defense of the city while the 67th Division, with the support of the naval aviation and artillery, was to check the advancing enemy on the exterior defensive lines. Both commanders approved the plan for joint actions on the map and a terrain mock-up and ordered their chiefs of staff, Col V.M. Bobovich and Capt 3d Rank M.T. Radkevich, to work out a plan for the defense of Liyepaya and a cooperation table. On the same day with the commanders of the units, ships and individual subunits they conducted a reconnaissance of the field and informed them of the procedure for the joint defensive actions. The main content of their instructions was to coordinate the actions of the shore batteries, the naval and troop artillery and the naval aviation with the actions of the division's units as well as the land naval formations to repel the enemy tank assaults and air and sea strikes. The time and areas of concentrating the fire were determined and clarified, the lines of barrage fire were coordinated with the infantry fire plan, the tasks were concretized for the individual units and subunits to improve the coordinating of their actions. In particular, in accord with the set coordination procedure, the following tasks were given to the fleet forces. The 43d Separate Air Squadron of MBR-2 [short-range naval reconnaissance plane] (commander, Capt I.Ya. Vakhterman) was to provide air support for the units of the 67th Rifle Division during their defensive battles on the distant approaches to Liyepaya. The aircraft were to scramble upon call from the division's commander. Enemy motor columns were to be the objectives. The naval aviators were also to conduct reconnaissance in the interests of the land units. The 23d and 27th Shore Batteries of 130-mm guns (commanders, respectively, Sr Lts S.Ye. Gordeychuk and M.N. Savin) were assigned to cover the ground units in their retreat. The instructions to open fire were to be given by the division's artillery chief. An analogous mission was set for the guns of the destroyer "Lenin" which was undergoing repair but it could open fire only upon instructions of the base commander. The guns of other ships were also to be employed for covering the flanks of the units and formations on he defensive.

The commander's plan for the defenses designated three defensive areas: northern, eastern and southern. The first two were to be held by navy base units reinforced by several subunits of the division while the third by the rifle battalion and company as well as the artillery battery from the division. Specific tasks were set for the commanders of the areas, they were acquainted with the terrain and reference points and issued to them the tasks of the adjacent units and supporting forces and the cooperation signals. A plan was worked out for employing the antiaircraft and shore artillery of the naval base for immediate defense of the city and the base as well as for its cooperation with the divisional. Thus, the actions of a cadet battalion of the naval school and the subunits of the 56th Rifle Regiment which were to hold the defenses in the eastern area were to be supported by the batteries of the 94th Light Artillery Regiment and the 27th Shore Battery of 130-mm guns; air defenses were to be provided by the base's 841st and 503d Antiaircraft Batteries. Their commanders received the appropriate instructions concerning the procedure for firing and mutual support. For launching counterattacks and strengthening the defenses on threatened sectors, a reserve of the command was organized from units of the base and the division numbering up to 1,000 men. In addition, submarines were deployed on the approaches to the base for close-in patrol.

The nature and the results of coordination of the Liyepaya Naval Base and units of the 67th Rifle Division can be judged from the employment of naval aviation. Some 13 MBR-2 aircraft provided support for the defending troops on the front's maritime flank, the line of Bernati, Simaki and the Barta River, launching bombing strikes against the enemy personnel and equipment. In just one day (23 June) they made over 100 sorties, thereby stopping the advance of the enemy motor columns in the Bernati area.(6)

Effective teamwork among the defending troops was achieved in the course of the fighting for the Hanko Naval Base. One of the effective measures contributing to this was the able organization of cooperation between the various forces on the boundaries of the battle areas as well as between the individual units and subunits. Proceeding from the precise computational data of the coordination table, the necessary number of guns and other weapons was set for the full support of the boundary areas; rifle subunits and batteries of coastal artillery were assigned to cover the flanks and establish a fire system whereby the flanks of the cooperating units and subunits would be covered; a procedure was set for the coordinated opening of fire. In order to prevent the enemy from bringing up the necessary materiel for the offensive and stockpiling it, from clearing obstacles and deploying infantry and tanks on the probable lines, concentrated and massed artillery fire were prepared for areas, lines and individual objectives designated by reference points. This made it possible to launch tangible strikes against the enemy. When the enemy artillery began intense shelling of the town of Hanko, the airfields and nearby islands, the shore, field and antiaircraft artillery of the base began accurate retaliatory fire against the enemy batteries, the accumulations of enemy troops, rail stations and other objectives. On 23 and 24 July, aircraft from the 13th Fighter Air Regiment made strafing attacks against the Turku Airfield and destroyed 12 enemy aircraft. As a total from 22 June through 28 August, the base's air group destroyed 24 aircraft. Thereby, it provided substantial aid to the defending troops in weakening the enemy advance and

strengthening the defenses.(7) This also was aided by the landing of amphibious forces which from 10 July through 23 October were able to drive the enemy from 17 islands near the naval base. The successful actions of the landing groups were ensured by close cooperation with the ships, aviation, the shore and field artillery.(8) In turn, the launches and auxiliary vessels of the harbor defense (OVR) set 249 mines, thereby strengthening the antilanding defenses of the coast.(9)

The commanders and their stafis, in organizing and supporting cooperation, gave significant attention to using all available opportunities and forces. The landing of amphibious forces here was one of the effective measures. Good results, as was already pointed out, came from the employment of landing forces in defending the naval base and peninsula of Hanko. They were also effectively employed in the defense of Murmansk, Polyarnyy, Odessa and other bases, ports and cities. This reinforced and activated the defenses and forced the enemy to break off the offensive and scatter its forces. In the planning of amphibious landings, the measures were coordinated with the actions of the defending troops. In a majority of instances, the coordination procedure was as follows. If the landing force was based on naval infantry units, then the time and landing area were basically coordinated with the command of the cooperating field forces and formations of land troops. During the period of preparing the landing force, in the course of its landing and in conducting combat operations on the shore, other questions were settled by the fleet staff independently. In other instances cooperation was organized considering the procedure for encountering the subunits assigned to the landing force at the assembly areas, the areas for embarking on the ships, the organizing of security in the crossing at sea, the support of the landing forces with naval ordnance fire, communications and so forth.

During the period of preparing to defend certain naval bases, ports and cities, the organizing of cooperation was impeded by the fact that the command of the bases and fleets did not always know ahead of time with what formations and units of ground troops they would have to conduct joint defensive operations. Thus, the command of the Baltic Fleet, in preparing to defend its main base at Tallinn, did not have information on the strength of the troops which would occupy the defensive lines being established. From 15 July 1941, the fleet military council assumed full responsibility for the land defense of the naval base. The command over all available forces was entrusted to the fleet air defense chief, Maj Gen Shore Serv G.S. Zashikhin. On 5 August, he headed the staff of the base's land defense which had been recently organized because of the arising threat of the encirclement of Tallinn from the land.(10) The staff officers, after reconnoitering the terrain, worked out a coordination table for the different fleet forces and land units which supposedly were to occupy the defensive area along the line of Pirita, Iru, Lageli, Lekhmya, the southern extremity of Lake Yellemiste, Pyaskyula, Kharku. Here under the leadership of the fleet engineer section, the personnel of the ships and the shore subunits as well as inhabitants of the city built reinforced concrete and wooden fire emplacements and dragons' teeth, they dug antitank trenches and full-depth trenches, they established artificial water obstacles and set out minefields and wire entanglements. Great attention was given to having the naval artillery cover the boundary lines of the adjacent units and subunits, the strongpoints as well as the maritime flanks of the

defending troops. According to a specially worked out plan for cooperation of the naval artillery with the land units approved by the fleet flagship artillery officer, Capt 1st Rank N.E. Feldman, and coordinated with the artillery chief of the X Rifle Corps of the 8th Army, Col G.A. Makarov, the carrying out of these missions was to involve one cruiser, two leaders, nine destroyers, three gunboats, eight shore batteries, one rail battery, and two armored trains. In addition, from the sea the base was covered by mine and boom obstacles and by aviation and antiaircraft artillery against air attack.(11)

On 14 August, the command of the Northwestern Sector, proceeding from the situation, put under the fleet military council the X Rifle Corps, the commander of which, Maj Gen I.F. Nikolayev, was appointed the deputy commander of the fleet for land defenses of Tallinn.(12) From this time the organizing and maintaining of cooperation between the naval forces and land units assumed a concrete nature. Maj Gen I.F. Nikolayev together with the senior defensive engineer chief, Engr-Col A.N. Kuzmin, inspected the defensive works on the individual sectors and assessed them at a session of the military council. In addition, he voiced the opinion on the need to further organize naval infantry detachments from the personnel of the ships and the shore subunits and incorporating these in the battle orders of the rifle units for closer cooperation and for the strengthening of defenses. The military council agreed with this and adopted a number of practical measures.

In carrying out the decisions of the military council, a significant role was played by the land defense staff headed by Maj Gen G.S. Zashikhin. It supervised the exchange of documents related to cooperation between the units of the X Rifle Corps and the base and the command of them.

The delayed establishing of a single command was at times a major obstacle in organizing close cooperation between the various formations and units in the course of defending the bases, ports and cities. Most often the defensive actions were directed by the naval military chiefs (the fleet or base commander). The commanders of the combined-arms field formations or the formation commanders were their deputies. In those instances when the formations and units of ground troops were in a majority and the defended point (area) had not been completely isolated, the troop commander headed all the forces. The fleet commander was appointed his deputy for naval affairs. Often the question of one-man command was resolved by the initiative of one of the sides. Thus, the defense of Liyepaya was headed by the commander of the 67th Rifle Division, Maj Gen N.A. Dedayev, while that of Tallinn was headed by the commander of the Baltic Fleet, V.F. Tributs.(13) At times, unified command was formal and relations between the land and fleet chiefs and the cooperating formations and units were not governed by any documents. For example, the defense of Odessa, until the establishing of the defensive area, was headed by the commander of the Maritime Army, Lt Gen G.P. Sofronov. However, this fact was not backed up in documents. Relations between the army command and the command of the navy base were also not set out in any documents.(14) This, naturally, could not help but be reflected in the organizing and support of cooperation as well as the command of the various forces in the course of the defensive battles, particularly if the situation repeatedly changed abruptly.

Hq SHC, the General Staff and the High Navy Staff, the command of the sections, fronts and fleets, in considering the situation and the specific features of defending one or another base, port or city, endeavored to establish the most acceptable and effective form for directing the defensive actions. Thus, in the directive of 19 August 1941, Headquarters adopted a decision for a fundamentally new organization of the forces, the command, the operational and combat command in the form of a defensive area (OR) which would include all the formations and units defending Odessa. Subsequently, other OR were established (Sevastopol, Kerch, Northern, Novorossiysk and Tuapse). Here the organizing of cooperation among the fleet and land forces was entrusted to different superiors. For example, the Kerch OR was headed by the commander of the 51st Separate Army, Lt Gen P.I. Batov, the Odessa by the commander of the Odessa Navy Base, Rear Adm G.V. Zhukov. (15) Subordination of the OR command was also organized differently. The commander of the Northern OR was under the military council of the Northern Fleet and the Tuapse OR under the 18th Army. (16)

The prompt establishing of unified command significantly facilitated the organizing of cooperation among the defending forces and improved their control. The commanders who were fully responsible for the defense of a point (area) and their staffs had an opportunity to work out and issue unified cooperation documents to the commanders of units and subunits, to effectively adjust the conclusions on the assessment of the situation and the mission, to concretize the aim of the joint actions, to designate objectives and sectors of counterattacks and counterstrikes and determine the strength of the forces and the ways of their massed and most rational employment. For example, on 20 October 1941, the military council of the Karelian Front in a directive to the military councils of the 14th Army and the Northern Fleet set specific missions and determined the ways for maintaining close cooperation between the naval forces and army troops. In particular it pointed out the following: in detachments numbering up to a battalion in strength which should include both army subunits as well as special formations from ship personnel, to commence systematic actions to thwart the enemy land shipments in the maritime areas; by continuous raids of the naval and frontal aviation, to destroy bridges and crossings and at night to fire on enemy troop accumulations, particularly around fires; by actions of scouts and snipers to tie the enemy subunits down in their positions. (17) In carrying out the instructions of the military council, the commander of the Karelian Front issued a directive according to which the 12th Separate Naval Infantry Brigade (minus one battalion) in the aim of intensifying counterattack actions on the approaches to Murmansk and organizing closer cooperation between the naval forces and the land formations and units on this sector was shifted along with the staff and the rear services to subordination to the 14th Army. (18) The command of the defensive areas and the commanders responsible for defending individual bases, cities and ports received directives from the General Staff, the People's Commissariat of the Navy, the High Naval Staff as well as telegrams and instructions by telephone and by radio. Representatives of Hq SHC and other levels were assigned to the field and they, having studied the situation, adjusted and concretized the previously issued instructions including on the most effective employment of the various forces and their control.

The military councils, the commanders, the staffs and the political bodies responsible for the defense of the bases, ports and maritime cities, in the aim of ensuring dependable cooperation between the different formations and units, were constantly concerned with the choice of command personnel and their indoctrination and the carrying out of effective party political work. Thus, in the course of the defense of Tallinn, the military council of the Baltic Fleet adopted a decision which pointed out that the initiating and greatest possible strengthening of indoctrinal work with the leadership were the main condition for success in combat. The task was set of systematically studying the command personnel, checking them in the course of carrying out combat tasks, of constantly helping them eliminate shortcomings, promoting the most capable, demanding that they study enemy tactics and make it a practice to analyze instructive battle episodes. The military council repeatedly appealed to the defenders of the city. Upon its instructions, more than 200 communists (party group organizers, deputy political instructors and Komsomol organizers from the subunits) were sent from the ships and units to work in the X Rifle Corps and the naval infantry brigade where they were assigned to the companies, platoons and squads.

The work method of one or another commander in organizing and maintaining cooperation depended upon the nature and content of the defensive actions, the arising conditions, the available forces as well as upon his experience and personal qualities. For example, the commander of the 67th Rifle Division, Maj Gen N.A. Dedayev, after reconnoitering the field and clarifying the tasks and cooperation procedures with the unit commanders, without fail left for the battle positions and the batteries of field and shore artillery, where he spoke not only with the commanders of the guns, rifle subunits and naval infantry subunits but also with the rank and file. He wanted each of them to know both his own task as well as the task of the neighbor and in the event of necessity could provide help to a comrade. The commander of the Baltic Fleet, Vice Adm V.F. Tributs, considered reliable communications to be one of the most important conditions in organizing effective and uninterrupted cooperation of the naval forces and ground formations and units as well as for strong defense of the bases. He was concerned with this constantly and himself skillfully employed telephone and radio communications in maintaining cooperation in the course of combat. In the defense of Tallinn, due largely to the concern of the fleet command and to his strict supervision, rather dependable communication was maintained with the fire support ships, the shore batteries and the land troop units. Particular attention was paid to organizing the communications of the ships and the shore artillery batteries with the correction posts. For this a clear organization of signals was established and the appropriate documents drawn up (tables with a list of the correction posts, ships, shore artillery batteries, the radio call signs and signals and so forth). These documents were distributed to all ships, batteries involved in fire support as well as to the units of the X Rifle Corps and the naval infantry subunits. V.F. Tributs was concerned with the communications of the command post the location of which was always successfully chosen, considering this very important for maintaining precise cooperation and command. During the period of the most intense fighting for Tallinn, he was at the command post established on the territory of the Mine Harbor. The command post had radio contact with the other naval bases and telephone communications with all units involved in the defensive. Located at

it were members of the military council and a portion of the sections of the fleet staff. The other staff sections and the political directorate were located on the staff ship "Vironiya." The commander's flag was hoisted on the dispatch boat "Pikker." Special naval infantry subunits were assigned to defend the territory of the harbor.(19)

The commander of the Northern Fleet, Rear Adm (from 16 September 1941 Vice Adm) A.G. Golovko, in organizing assistance by the fleet forces to the formations and units of the 14th Army (commander, Lt Gen V.A. Frolov), endeavored to always be up on all events occurring on the different sectors of the land defense and above all on the sectors of the most crucial (Murmansk) sector. For this purpose he allotted time for personal contact with the army commander and his staff officers as well as the commanders of the divisions, regiments and battalions. He did this at meetings and conferences and during trips to the staffs and to the battle positions, that is, he used every appropriate instance. A.G. Golovko considered it his duty to inform the commanders of the fleet formations, units and ships on the situation on the land front, particularly in giving the next missions which he often gave personally. As a result, in his opinion, the officers showed a greater responsibility for carrying out the common tasks and close and continuous cooperation was ensured between the fleet forces and the land troops.

Thus, clear and close cooperation between the fleet forces and the land field forces, formations and units, when organized in the course of the fighting for a base, port and city, played a significant role in strengthening the defenses. This was expressed in the following: in the direct involvement of the fleet forces, primarily the naval infantry, in defending the naval bases and the adjacent areas; systematic support for the ground troops by ship and coastal artillery and naval aviation which attacked enemy personnel and equipment; sea delivery of reinforcements, ammunition and food to the garrisons defending the base; defending the bases, ports and maritime cities from the sea. Depending upon who was entrusted with the leadership of the defenses, direct cooperation was organized by the troop or fleet chiefs. This consisted in the most rational employment of the different formations, units and formations coordinated in terms of time, place and objective (goal). Effectiveness was ensured by: joint planning of battle (operation), personal contact of the commanders and staff officers, a unified understanding of the capabilities of the cooperating troops and permanent exchange of information concerning the situation, prompt compiling of the documents governing the cooperation procedure, the issuing of these to executors and the conducting of an active defense. Widespread were joint reconnaissances of the field with the simultaneous setting of battle tasks, the exchanging of representatives of the various staffs and liaison officers, the incorporation of code signals into the battle (operation), and the careful joint elaboration of the procedure for handling battle orders, intelligence information, warnings and reports.

Stable cooperation and the continuous maintaining of this in the course of defensive combat were achieved by a clear and correct understanding of the battle tasks by all commanders and soldiers, by the resubordination of the forces, by the presence of continuously operating communications between all elements of the battle formations as well as by support and reinforcements, by

the elaboration of standard reference points and control signals and by the combined location of the command and observation posts of the commanders of the rifle and fleet formations and units.

Much depended upon the conducting of effective party-political work as well as upon the combat experience and personal qualities of the leaders of the defense who organized and carried out the command of cooperating forces.

FOOTNOTES

1. V.I. Achkasov, N.B. Pavlovich, "Sovetskoye voyenno-morskoye iskusstvo v Velikoy Otechestvennoy voynе" [Soviet Naval Art in the Great Patriotic War], Moscow, Voenizdat, 1973, pp 91-92.
2. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 403, inv. 1554, file 10, sheets 352-353.
3. A.V. Basov, "Flot v Velikoy Otechestvennoy voynе, 1941-1945" [The Navy in the Great Patriotic War, 1941-1945], Moscow, Nauka, 1980, p 108.
4. TsVMA [Central Naval Archives], folio 93, file 1511, sheets 6, 7.
5. Ibid., folio 9, file 109, sheet '3; folio 18, file 40015, sheet 4; folio 22, file 143, sheets 5, 7-9 20-36.
6. Ibid., folio 22, file 143, sheets 20-36.
7. Ibid., folio 46, file 787, sheets 61, 62.
8. Ibid., folio 9, file 109, sheet 100; file 34185, sheets 40, 44-45.
9. Ibid., folio 100, file 34185, sheet 39.
10. See: V.F. Tributs, "Baltiytsy srazhayutsya" [The Baltic Fleet Sailors in Battle], Moscow, Voenizdat, 1985, pp 56-57; "Boyevaya letopis Voyenno-Morskogo Flota. 1941-1942" [The Campaign Record of the Navy. 1941-1942], Moscow, Voenizdat, 1983, pp 105-106.
11. TsVMA, folio 25, file 11090, sheets 48-50.
12. TsAMO, folio 132A, inv. 2642, file 23, sheet 15.
13. See: V.I. Tributs, op. cit., pp 24, 56.
14. See: "Boyevaya letopis Voyenno-Morskogo...," p 225.
15. TsAMO, folio 407, inv. 9837, file 2, sheets 202, 203.
16. TsVMA, folio 11, file 1775, sheet 38; "Boyevaya letopis Voyenno-Morskogo...," p 321.
17. TsVMA, folio 112, inv. 160, sheets 5, 5 verso.

18. Ibid., file 161, sheet 86.

19. See: V.F. Tributs, op. cit., p 63.

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COMBAT EMPLOYMENT OF ARTILLERY IN MOUNTAINS

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[Article by Candidate of Military Sciences, Docent, Col V.A. Chernukhin; the article was written from the experience of the Great Patriotic War]

[Text] During the years of the Great Patriotic War, the employment of artillery in actions in the mountains both on the offensive and defensive had its particular features. These were apparent primarily in the organizing and conduct of the reconnaissance of the enemy defenses, the employment of the artillery weapons and the training of the personnel for fighting under mountain conditions.

The conduct of reconnaissance in mountainous and mountain-wooded terrain was impeded by the abundant interference even within the forward edge of the enemy defenses. For this reason, in the mountains and particularly in the Carpathians, so-called mobile observation posts were employed and up to 65 percent of all targets was reconnoitered with them. In preparing for the offensive as well as in the course of it there was the practice of sending out artillery correction groups into the enemy rear.(1) The limited observation in the mountains required the moving of the artillery observation posts in the forward extended infantry lines and the employment of short-based combined observation. Significant difficulties arose in organizing sound ranging of the enemy batteries in the mountains and this reduced the effectiveness of counterbattery bombardment. The problem was that with the locating of the sound ranging posts in the mountains at different elevations, the recording of the sound due to the differing weather conditions was distorted at them. Much more time was required than on flatlands for reconnoitering and fixing the battle order of the sound ranging subunit, for its deployment and for processing the sound tape. For this reason the deployment line of the battle order had to be chosen on the mountain slopes facing the enemy so that the sound ranging posts were on the same elevation and did not have a higher ridge ahead within the limits of 2-4 km.

The difficult conditions of the mountains necessitated the employment of a lighter and more mobile artillery piece which was less dependent upon the presence and condition of the roads and possessed a high trajectory. Preference was given to mountain guns and mortars. For this reason, for

example, for preparing the offensive in the Carpathians in the First and Fourth Ukrainian Fronts, in the artillery regiments one of the 76-mm cannon batteries was reequipped with 120-mm mortars. In certain rifle divisions, one battery from an antitank battalion was armed with 107-mm mountain-pack mortars. A portion of the rifle regiments received horse-drawn mountain weapons.(2)

Rocket artillery was also employed in the mountains. Thus, during the Battle of the Caucasus, engineers from the mobile repair shop of the guards mortar (rocket launcher) units of the Black Sea Troop Group and officers from the 14th Separate Mortar Battalion designed special mountain-pack M-8 units. These were manufactured at the Sochi railroad shops and successfully employed in combat.(3) In the Carpathians, along with the mountain-pack mortars and cannons, the mountain BM-8-8 rocket artillery units developed in 1944 proved fully effective; these were mounted on cross-country vehicles of the Jeep or GAZ-67 type. Sometimes such units in a disassembled form were delivered by hand to the firing positions.

The firing of artillery in the mountains involved definite difficulties. In particular, it was essential to make additional corrections in the setting for firing, as often the difference in the altitudes of the reciprocal positioning of the firing positions, the targets and the observation post relative to sea level was rather great.

Difficulties also arose in mountainous areas in ammunition supply. Often due to the lack of mountain-pack transport, shells and ammunition had to be delivered to firing positions by the personnel itself.

In training the personnel for actions in the mountains, the command of the fronts issued special instructions and orders. For example, before the offensive in the Eastern Carpathians, the Military Council of the Fourth Ukrainian Front in mid-August 1944 worked out the "Organizational Instructions to Prepare the Troops for Actions in the Mountains." After this document the "Instructions to the Troops Fighting in Mountain-Wooded Terrain" were issued and these were a brief exposition of the main provisions of the regulations, manuals and guides for combat in the mountains and reflected the experience gained in the course of the Battle of the Caucasus. The staffs of the branches of troops also worked out their own guiding documents. In particular, the artillery staff of the Fourth Ukrainian Front issued the "Instructions for Actions in Mountains" which set out in an accessible form the particular features of artillery actions in mountain-wooded terrain.

Party-political work played an important role in preparing the personnel of the artillery units and subunits for fighting in the mountains and this was aimed at ensuring high troop morale and increasing the skill of the artillery troops. For example, prior to the start of the operation to liberate the Caucasus and in the course of preparing for the fighting in the Carpathians, meetings of the party aktiv from the primary party organizations were held in all artillery units and here they discussed the tasks of the communists for political support of operations under mountain conditions.(5)

In analyzing the offensive and defensive operations carried out in mountainous and mountain-wooded terrain, it is possible to detect a number of other particular features in the combat employment of artillery in the mountains. During offensive operations, these occurred in carrying out the regrouping of artillery for the purpose of massing it, for creating artillery groups, in planning and carrying out an artillery offensive and for moving the artillery in the course of the hostilities. Since an offensive under mountain conditions was carried out, as a rule, on individual axes accessible for offensive operations, where the enemy had a solid, deeply echeloned defense, this required the prompt concentration of significant artillery forces on these by the start of the operation (or in the course of it). However, while on flat land the results of the regrouping told comparatively quickly on an increase in the artillery density on the axis of the Soviet troop strike, under the conditions of the mountain-wooded terrain, in the absence of a sufficient number of lateral roads, a maneuver along the front on a tactical and even an operational scale was difficult and was drawn out in time. For example, in the course of the Eastern Carpathian Operation, the regrouping of the artillery from the area of the 1st Guards Army into the area of the 18th Army was drawn out over time and told negatively on a prompt increase in the number of guns and mortars in this field force and in the XVII Separate Guards Rifle Corps fighting on the axis of the main thrust. Under mountain conditions, as combat experience showed, it was better to carry out a successive inner regrouping over a short distance, as this significantly reduced the time the artillery units being regrouped remained off the battlefield. In the course of the regroupings carried out during the Eastern Carpathian Operation, the greatest average daily move was made by the mountain-pack mortar regiments which had to move almost 50 km a day. The remaining artillery and mortars maneuvered over shorter distances. (6) The rocket artillery units armed with the special RM-8-8 mountain units showed high maneuver capability in regrouping in the mountains. For example, in the Carpathians, on 16 September 1944, the 3d Separate Guards Mortar Battalion in 11 hours made a march of up to 300 km from the position of the XVII Guards Rifle Corps to the area of the 1st Guards Army. (7)

The regrouping of artillery units and formations, in being promptly executed under mountain conditions, played an important role in the massing of artillery on the most important sectors. For example, in the 38th Army of the First Ukrainian Front in the Carpathian-Dukla Operation, the artillery density as a result of the regroupings and the skillful distribution of it on the 8-km-wide sector of breaking through the enemy defenses averaged up to 144 guns and mortars per kilometer and up to 164.5 units in the areas of individual divisions. (8) This was completely sufficient. Judging from the combat experience in the Carpathians, the successful breaching of the deliberate enemy defenses was possible with a density up to 100 and more guns, field artillery mortars and rocket launchers per kilometer of breakthrough sector. Here the direct laying guns per kilometer should be up to 18-20 units. (9)

The artillery subunits took up their firing positions basically along roads and valleys, in echeloning these in depth. The guns and individual batteries assigned for direct laying were positioned on commanding heights and slopes facing the enemy and carefully camouflaged.

The artillery grouping in the offensive operations conducted in mountain-wooded terrain, as a rule, was the same in an offensive under ordinary conditions. Artillery groups were organized in all elements from the regiment to the army. Only the grouping of the 38th Army in the Carpathian-Dukla Operation was unique. By the start of the offensive an army artillery group and a rocket artillery group had been organized in it and with the development of the operation, also a mortar group. In the hands of the army commander the latter was a strong weapon with increased maneuvering capabilities and was used in the event of necessity for reinforcing the artillery fire of the formations and units. It included two subgroups each of which consisted of five companies of 82-mm mortars and three batteries of 120-mm mortars. Since the mortar group was used most often for reinforcing the artillery fire of a certain rifle division of the field force, its commander remained near the artillery commander of the formation, the commander of each subgroup stayed with the commander of one of the rifle regiments while the battery (company) commanders stayed with the commanders of the rifle companies.

Divisional artillery groups and antitank artillery groups were organized in the rifle corps. In the course of developing the offensive and with the inevitable increase in the overall width of the corps area, the use of the divisional groups was completely effective. There was no need to establish special antitank groups. They fulfilled the role of conventional artillery antitank weapons.

In the rifle regiments, strong regimental artillery groups (four-six battalions) were organized and under the conditions where the rifle units fought on individual sectors, this was most effective as it ensured their independence in carrying out the set tasks.

The lack of intelligence data on the depth of the enemy defenses in the mountains and the offensive along individual axes also predetermined certain features in the planning and implementing of the artillery offensive. Artillery softening up for the attack in the mountains was carried out in the aim of securely neutralizing the enemy in the main defensive area. However, since the most complete data existed, as a rule, only about the targets located on the forward edge, the greatest effect from artillery fire was achieved in striking these.

The artillery softening up for the attack under mountain conditions could be both brief as well as extended with the alternating of intense shelling and battery fire. For example, in the Belgrad Operation, the 19th Rifle Division from the 57th Army from the Third Ukrainian Front on 3 October 1944 attacked the enemy after a powerful 15-minute intense shelling. (10) In September 1944, in the zone of the 38th Army in the course of the Carpathian-Dukla Operation, the artillery softening up for the attack lasted 2 hours and 5 minutes (10 minutes for intense shelling to the entire depth of the defenses; 45 minutes for battery neutralization and destruction; 10 minutes for intense shelling by a larger part of the artillery and mortars against all enemy batteries; 5 minutes with battery neutralization and destruction; the last 15 minutes of intense shelling against the first and second trenches; in the aim of dependable neutralization of the enemy personnel and weapons on the forward edge and in the near depth ahead of the assault). (11)

In the course of the Eastern Carpathian Operation, the artillery offensive was planned with greatest care and detail on the level of the rifle regiment, the division and more rarely the corps. Here the most typical organization of the artillery softening up was either 20-25 minute battery destruction and neutralization and a 5-minute intense shelling against the targets on the forward edge and the batteries ahead of the assault or initially a 3-5-minute intense shelling and then 15-40-minute destruction and neutralization by battery fire and finally a 5-minute intense shelling ahead of the assault. The direct laying guns opened fire during the last 20-30 minutes.

The artillery support for the attack was basically carried out by the PSO [successive fire concentration] method. A rolling barrage was also employed. For example, in the Carpathian-Dukla Operation on the sector of the main thrust, the artillery was to support the attack to a depth of 1.5 km using a variety of this, by the method of creeping fire with an increasing pace against 15 lines. In the Manchurian Operation under the conditions of a mountain terrain, the rolling barrage was employed combined with the PSO. (12)

With the ending of the artillery softening up, the artillery accompanied the infantry and close support tanks deep in the enemy defenses. Here, as a rule, all the battalion and regimental artillery, the mortar subunits assigned to the advancing troops as well as a portion of the cannon batteries from the divisional artillery in the course of combat moved in the infantry battle formations, in successively concentrating fire against the most important objectives or destroying individual targets by the fire of direct laying guns.

In those instances when the Soviet troops changed the axis of the thrusts in the aim of achieving surprise or when the need arose of preventing the enemy from digging in on a new line (position), very little time was allocated to plan the artillery offensive. Here on a number of fronts, including the Fourth Ukrainian (Eastern Carpathian Operation), accelerated planning or an accelerated method of fire preparation was widely employed and the essence of this came down to the following. A final reconnaissance was organized of the enemy defenses by all the forces of the artillery units and subunits. On the particularly crucial sectors of advance of the regiments and divisions, this was carried out by the artillery reconnaissance forces. The tasks for the PP [infantry support] groups and the DAG [divisional artillery group] were set in the field and immediately written down. The planning of the artillery fire and its preparation were carried out using reconnaissance maps with a scale of 1:25,000-50,000 and more rarely with a scale of 1:100,000. On the artillery staffs of the rifle corps and divisions they quickly worked out a draft plan for the artillery offensive indicating the target coordinates, the organization and duration of the artillery softening up (this usually did not exceed 15-30 minutes), the procedure and time for support for the assault, the tasks of the artillery groups and ammunition consumption.

In the mountains the artillery was moved in such a manner that one-third of it carried out a maneuver while the remaining two-thirds fired at the enemy. The experience of an offensive under mountain conditions showed that the 82-mm and 107-mm mortars on pack animals and the BM-8-8 rocket units could be moved in the infantry battle formations without any special difficulty. It was more

difficult to move up guns to direct positions for direct laying. Most often these had to be moved up by hand and only in individual instances were horses or motor traction employed.

The divisional tractor-pulled artillery in mountain areas often fell behind and was forced to fire at maximum ranges, deploying along roads. Its firing positions were often 3-7 km from the forward edge of the enemy defenses. Under these conditions only a wider maneuver of trajectories along the front was possible.

With the development of the offensive, even a small amount of artillery and mortars in moving forward promptly had a decisive impact on the outcome of combat. But success could be achieved only when the guns were raised to elevations where the enemy did not expect our weapons. For example, in the course of the Eastern Carpathian Operation on 13 September 1944, the artillery troops of two batteries of the 130th Antitank Artillery Regiment of the 1st Guards Army pushed two guns to elev. 396.0 in the Markovce area and by surprise fire neutralized the enemy weapons, thereby ensuring the infantry advance. Then in the aim of holding the rifle subunits on the captured line, two guns were brought up to a nameless elevation. The presence of the four cannons on the prevailing heights made it possible for the 129th Guards Rifle Division to repel all counterattacks undertaken by the enemy on the following day, and hold the occupied line. (13)

Thus, in the offensive operations (battles) carried out in the war years in mountain areas, the artillery successfully carried out the tasks of fire damage to the enemy and provided effective aid to the advancing infantry and tanks.

The artillery was also of great importance on the defensive. In the mountains of the Caucasus, for example, due to the fact that each rifle division defended a wide front (20-35 km) and in alpine areas up to 90 km, command of the artillery on the level of the rifle formations was usually centralized only on the sectors of the expected enemy main thrust. PP groups were organized in the divisions and fought on these sectors of the front. In the armies long-range artillery groups were established from the reinforcement artillery on the major sectors.

If there were prepared routes in the rear, the individual batteries of the divisional artillery could be maneuvered. However, due to the limited opportunities for maneuvering the equipment, the maneuvering of fire was more widely employed. The artillery battalions, batteries and separate guns sometimes received arcs of fire up to 180-240 degrees.

In the course of conducting the defensive, great importance was given to the massed employment of artillery on sectors open to enemy troop actions. Its firing positions were located along roads, mountain ranges with gentle slopes, ravines, roads and paths. Here the artillery batteries were either echeloned to a depth of 8 km from the forward edge or were positioned in a single line along the roads running parallel to the front.

The regimental and battalion artillery on the defensive in mountains was basically employed for direct laying, in particular for conducting flanking and oblique fire ahead of the forward edge and in depth. In defending ranges and elevations, the firing positions of the batteries were positioned in such a manner that it would be possible from the main positions to fire with direct laying against the slopes facing them, the top of the elevation and along the crest of the range in the event of their capturing by the enemy.

The firing of the individual direct laying guns in a number of instances was extremely effective. For example, on one of the sectors of the Transcaucasian Front in the course of the defense of the Northern Caucasus, our small subunits with the support of direct firing of two guns during 26-30 September 1942 thrice threw back the enemy of up to an infantry regiment in strength and which was endeavoring to capture Mount Beyman. (14)

In the Arctic, on the probable routes of enemy advance, the artillery and mortars carried out barrage and concentrated fire. These types of fire were readied only in front of the forward edge and on the flanks. However, in the course of the fighting it was also necessary to prepare them deep in the defenses. Mortars were used particularly effectively in the Arctic. The firing positions of the mortar subunits were chosen on the back sides of elevations, in ravines, gorges and valleys. Huzming guns and mortars were widely employed for firing from false firing positions. This confused the enemy on our artillery grouping and forced it to waste an enormous amount of ammunition. (15)

In the course of the defensive, the artillery was widely employed for supporting the counterattacks and counterstrikes of our troops. For example, in November 1942, some 1,300 guns and mortars were concentrated for supporting the counterstrike against the Gisal enemy grouping (10 km to the west of Ordzhonikidze), and this made it possible to have an average density of 36 guns and mortars per kilometer of front. (16)

The duration of the artillery softening up in launching counterstrikes did not exceed 30 minutes, while the support for the infantry and tank assault was carried out by firing to neutralize individual targets. Other methods of artillery support for the assault were not employed, as the terrain conditions did not permit this and there was not enough ammunition.

The organization of antitank defenses envisaged the group employment of antitank weapons in the antitank strongpoints (PTOP) and centers of resistance. Here the fire of the artillery making up the PTOP was closely coordinated with the firing of the infantry antitank weapons and the man-made antitank obstacles. The antitank strongpoints and centers of resistance were echeloned in depth. In order to exclude the hitting and destruction of the gun crews by the enemy infantry and to use the artillery subunits just for combating tanks, the PTOP were covered by small arms and machine gun fire from the combined-arms formations located in these areas.

For increasing the density of the antitank weapons on likely tank approaches and for preventing the driving of enemy tanks deep into our defenses, in all elements (from the divisions to the front) artillery antitank reserves (ATB) were

were established. For example, the APTR of the Northern Troop Group of the Transcaucasian Front in August 1942 included up to four antitank regiments (iptap), while each army had one or two iptap and a division had one iptadn [antitank artillery battalion]. On the main axes of enemy advance, each APTR prepared in depth deployment lines in the aim of increasing the density of the antitank weapons when necessary. For example, the total density of antitank artillery in the Northern Troop Group of the Transcaucasian Front equal to 4 guns per kilometer of front, with prompt maneuvering of the antitank reserves, could be increased on likely tank approaches to 14-36 guns per kilometer of front.

The divisional and army artillery was involved in combating large tank groupings and this by setting up long-range artillery strikes and moving barrage fire hit the enemy tanks before they reached the forward edge. Indirect artillery firing positions were chosen on the likely tank approaches with the task of immediately opening fire against the tanks with direct laying.

Massed artillery fire also played an important role on the defensive. For example, in the defense of the Northern Caucasus, the enemy suffered great losses in the repelling of its assaults in the zone of the 18th Army, when fire was massed by two army artillery groups (September 1942). (17) Massed fire of rather strong army long-range artillery groups and rocket artillery was widely employed in repelling the Nazi troop offensive on the Mozdok and Ordzhonikidze axes. It must be pointed out that the massing of artillery fire to a significant degree was facilitated by the advance of the enemy along roads and in the direction of passes.

In conducting the defensive in mountains definite importance was given to the organizing of ambushes which were usually set up on turns and bends in roads, in defiles, on the edges of forests, at bridges over mountain rivers and in population points.

Thus, the effectiveness of employing artillery in the mountains both on the offensive and defensive depended largely upon the skillful organization of reconnaissance of the enemy, the prompt regrouping of the artillery units and subunits to the most important sectors, the choice of the firing positions, a creative approach to the planning and conduct of artillery fire, the training of the personnel for fighting under mountain conditions as well as other factors. A profound study of the experience gained in the course of the operations of the Great Patriotic War conducted in the mountains and its creative employment considering present-day conditions are of great importance for increasing the combat readiness of the artillery units and subunits.

FOOTNOTES

1. "Sovetskaya artilleriya v Velikoy Otechestvennoy voynе 1941-1945 gg." [Soviet Artillery in the Great Patriotic War of 1941-1945], Moscow, Voenizdat, 1960, p 546.
2. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 236, inv. 2700, file 28, sheet 17.

3. "Sovetskaya artilleriya v Velikoy...," p 142.
4. [Not in text]
5. TsAMO, folio 209, inv. 1019, file 110, sheets 10-11; folio 456, inv. 6850, file 368, sheets 6-7.
6. "Sovetskaya artilleriya v Velikoy...," p 537.
7. Ibid., p 547.
8. Ibid., p 534.
9. Ibid., p 542.
10. Ibid., p 549.
11. Ibid., pp 535-536.
12. L.N. Vnotchenko, "Pobeda na Dalnem Vostoke" [Victory in the Far East], Moscow, Voenizdat, 1971, p 108.
13. "Sovetskaya artilleriya v Velikoy...," p 539.
14. Ibid., p 142; "Bitva za Kavkaz" [The Battle of the Caucasus], Moscow, Voenizdat, 1954, p 262.
15. N.M. Rumyantsev, "Razgram vraga v Zapolyarye" [The Defeat of the Enemy in the Arctic], Moscow, Voenizdat, 1963, p 82.
16. "Sovetskaya artilleriya v Velikoy...," p 143.
17. TsAMO, folio 371, inv. 6386, file 10, sheets 17-18.

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ENGINEER ORGANIZATION, MAINTENANCE OF CROSSINGS OF WATER OBSTACLES

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[Article by Candidate of Military Sciences, Docent, Col (Ret) A.A. Soskov; the article was written from the experience of offensive operations of the Great Patriotic War]

[Text] During the years of the Great Patriotic War, the Soviet troops in the course of an offensive had to cross a significant number of different water obstacles, particularly rivers. Here the main burden in supporting their crossing by the personnel and combat equipment of the units, formations and field forces rested on the engineer troops. In the course of offensive operations, the troops crossed water obstacles using regulation, nonregulation and improvised floating equipment (by an assault), on rafts, using existing or newly-built bridges on rigid supports and bridges put up on pontoon parks and barges, by fording as well as across the ice. For assault crossings, the troops employed the following regulation crossing equipment: wooden collapsible boats (DSL), combat engineer wooden boats (SDL), sets of sink-resistant equipment (TZI), inflatable rubber boats (A-3, LMN), the pontoons of the pontoon parks and launches. For ferry crossings and for erecting floating bridges they used the wooden bridge parks DMP-41 and DMP-42, the heavy bridge parks N2P and TMP, parks from rubber UVSA-3 and MDPA-3 boats, the light NLP parks and the wooden light parks DLP.

For crossing rivers, extensive use was also made of local crossing equipment (boats, river launches, barges, wooden and metal barrels, inner tubes), equipment made from materials at hand as well as captured from the enemy.

The conditions of the battle situation, the nature of the water obstacle and the availability of crossing equipment influenced the choice of the crossing method, the employment and equipping of one or another type of crossing as well as the sequence of putting them into use.

During the first war years the troops crossed narrow (up to 60 m wide) and shallow water obstacles predominantly over bridges and by fording. Thus, in crossing the Gornyy Tikich River (20-60 m wide, 0.3-1.5 m deep) in March 1944, the troops of the 27th Army of the Second Ukrainian Front used 16 fords, 5 captured bridges and 3 newly-built ones.(1) The Neisse River (40-50 m wide,

2-5 m deep) on 16 April 1945 was also crossed by the main forces of the armies of the First Ukrainian Front, chiefly using bridges and fords (for the tanks), and the SDL boats for the capturing of a bridgehead on the opposite bank by the forward subunits.(2)

The crossing of medium-sized rivers (60-300 m wide) started, as a rule, by the organizing of assault and ferry crossings with the subsequent replacement of a majority of these by floating and fixed-support bridges over which the main forces crossed. For assault crossings they frequently made use of improvised materials, and local as well as captured equipment (pontoons, boats). For example, in the spring of 1944, this was how they crossed the Southern Bug River (80-120 m wide), the Dnestr (100-250 m wide) and the Prut (80-150 m wide).

In the crossing of medium-width rivers, particular attention was given to increasing the rate of troop crossing by the subsequent building and use of crossings with greater capacity. For example, in crossing the Narew River (100-140 m wide), on 4 September 1944 by the 48th Army of the Second Belorussian Front, four forward detachments of the first-echelon rifle divisions crossed on assault equipment (the DSL, SDL and A-3 boats as well as improvised equipment) as well as over the single captured bridge. By the time the main forces had reached the river, ferry crossings had been organized (five ferries with a capacity of 9 tons). By the end of the day of 5 September, two floating bridges were in operation made from the NLP parks (for a load of 9 tons) and the N2P parks (for loads of 16 tons) as well as two ferry crossings for loads weighing up to 60 tons inclusively. By the end of 6 September, a fixed-support bridge with a load capacity of 60 tons had been built and a destroyed 30-ton bridge had been repaired.(3)

In crossing water obstacles 300 and more meters wide, for example, the Dnieper, Vistula, Oder, Danube and other wide rivers, due to the carrying off of available equipment by the water (particularly in the lower course of the rivers), the first-echelon divisions basically crossed on regulation equipment and rafts. Here the number of assault and ferry crossings in the crossing sectors was less while the capacity of the crossing equipment on each of them was significantly greater than on the medium-wide rivers. For example, at each of the three crossing points of the 92d and 62d Rifle Divisions of the 37th Army in crossing the Dnieper, there was an average of 25-30 units of various crossing equipment.(4)

The regulation crossing equipment during the first days of the crossing of the Dnieper, for example, on the Voronezh Front, in terms of its capacity even in the assault crossings was 64 percent of all the employed equipment. The proportional amount of regulation equipment in the ferry crossings was 97 percent.(5)

As for bridge crossings (floating, combined bridges and fixed-support bridges), due to the significant need for regulation equipment and lumber in erecting them and the high labor intensiveness of the work, they were built comparatively rarely on wide rivers.

At times the rivers were crossed employing virtually all types of crossings. In this regard, of interest is the experience of the crossing of the Oder by the troops of the First Ukrainian Front under winter-spring conditions, when the river was only partially covered by ice. All the armies (the 5th Guards, the 13th, 54th and the 4th Guards Tank) built ice crossings and assault and ferry crossings on areas free of ice. The pontoon units of the front's reserve put up floating bridges or floating bridges with fixed-support approaches and in parallel built low-level, fixed-support bridges. (6)

In choosing the place for organizing the crossings, usually extensive use was made of maps, military geographic descriptions, aerial photographic data and other sources. Valuable information was provided by local inhabitants. With the approach of the troops to the water obstacle, the previously designated crossing areas were adjusted. Preference was given to those areas and sectors of the terrain where enemy defenses on the opposite bank were weaker, where there were routes accessible for the moving up of the troops, the banks were more convenient for the putting up of bridges, where there were concealed areas for the concentration, preparation (assembly) and launching of the crossing equipment and concealed approaches to the river. They sought areas where natural and man-made obstacles were absent on the near bank where there were no shoals on the water obstacle itself and the current speed was low.

Engineer reconnaissance of a water obstacle and the crossing areas was carried out predominantly by the subunits and units of those engineer troops which were to organize the crossing. (7)

The organizing of the crossings was preceded by the prompt moving up of crossing equipment to the water obstacle in the course of the offensive. Regulation assault crossing equipment was most often located in the first-echelon divisions and moved up to the water obstacle in the battle formations of the forward units. If there was not enough of this, local flotation equipment and improvised materials were assembled to support the assault crossing of the troops.

It was significantly harder to deliver the pontoon parks and elements of bridge structures for setting up, respectively, the ferry and bridge crossings. The limited number of regulation pontoon parks in the armies and fronts as well as the necessity of their extended use on the crossings of a previous water obstacle often did not make it possible to promptly maneuver them from one river to another at the time designated by the rate of advance and the time the troops would reach the river which had to be crossed. Also telling negatively on the maneuvering of the pontoon parks was the shortage of motor transport for carrying them, the lack of fuel and lubricants and the impassability of the roads.

For example, on the Southwestern Front, after the crossing of the Severskiy Donets River, there were around 20 sets of various parks but not more than 50 percent of them had motor transport. Naturally this impeded their prompt moving up to the Dnieper. (8)

In carrying out the Uman-Botosani Offensive Operation, the Second Ukrainian Front had around 15 sets of N2P and TMP pontoon bridge parks (not counting

light ones), while the availability of special motor transport was just 12 percent in the first pontoon bridge brigade, 13 percent in the 8th Pontoon Bridge Regiment and only 2 percent in the remaining engineer units under the front (with the exception of the pontoon battalions). For this reason as well as due to the commenced muddy season, the parks were moved to the Dnestr only on the 10th-12th day after the start of its crossing.(9)

A different picture was observed when the army commanders, the military councils and the chiefs of the engineer troops took specific measures ahead of time to ensure the prompt maneuvering of crossing equipment. For example, the tasks of organizing the moving up of the pontoon bridge parks were successfully carried out in the 7th Guards Army in the crossing of the Dnieper as well as in the 48th Army in crossing the Narew.

In the course of the Belorussian Operation, in the aim of promptly supporting the crossing of the Luchesa River by the horse-mechanized group and the 5th Guards Tank Army, the military council of the 5th Army of the Third Belorussian Front assigned 120 motor vehicles to transport the pieces of the bridge elements to this water obstacle. The available motor transport made it possible for the chief of the engineer troops in the field force to rapidly organize the delivery of the elements to the river and to build five bridges during the night of 24 June 1944. The horse-mechanized group crossed over them followed by the 5th Guards Tank Army.(10)

The search for ways to promptly move up crossing equipment to the water obstacles in the third period of the war led to an original solution to this important problem. Combat experience showed that a combined-arms army had better conditions for moving the crossing equipment to the river and organizing the crossings when the mobile group of a front (army) was incorporated in its area and operated in the operational depth. In benefiting from the success of the group, the command could organize and send out an unique army mobile engineer detachment around the forward detachments of the rifle divisions. Such temporary formations included combat engineer and pontoon bridge units and subunits with crossing equipment carried on motor transport. Thus, in the course of the Vistula-Oder Operation, on 24 January 1945, the 13th Army organized a mobile forward detachment for reconnoitering and supporting the crossing and consisting of a combat engineer company from the 281st Combat Engineer Battalion with 13 NLP pontoon parks carried on 7 motor vehicles and a company of the 282d Combat Engineer Battalion with 3 motor vehicles. This detachment under the command of the chief of the army engineer troops, in utilizing the success of the forward units of the 4th Tank Army which reached the Oder, moved up to the water obstacle and commenced engineer reconnaissance of the crossing areas and the organizing of the crossings (assault-ferry and over the ice).(11)

The crossings were organized and maintained in accord with the plan for organizing and maintaining the crossings and this was drawn up by the corps (divisional, regimental) engineer.(12)

In organizing the assault crossings, the areas were allocated for unloading the boats and pontoons and the start line was designated; shelters were built for the personnel of the traffic control service (checkpoints and signal

posts) and the boatloads (in the initial area); the area of concentration of the crossing equipment was organized and camouflaged and column tracks laid from the initial areas to the unloading line designated by handrails, markers, flashlights and so forth.

The preparation and deployment of the assault crossing equipment were not particularly difficult. The boats and pontoons, as well as equipment made from improvised materials, were launched by the crossing troops and combat engineers themselves. Most often combat engineers were assigned as rowers on the regulation crossing equipment and they, having landed the first wave, returned for the loading and crossing of subsequent ones.

The maintaining of assault crossings included: ensuring the uninterrupted operation of crossing equipment by maintaining the assault boats and pontoons in proper order; repairing the routes for the troops to reach the crossing, the approaches to the river; the standing of traffic control and rescue duty.

The traffic control service which included men from the engineer troop subunits provided direct control of the crossing traffic. For standing rescue duty, particularly on the medium and wide water obstacles, one to three boats and a team of experienced divers were assigned.

Ferry crossings were organized like the assault ones, but with the building (assembling) of docks. The pontoon bridge and combat engineer units assembled the ferries from the pontoon bridge parks in an average of 30-40 minutes and sometimes longer. In the aim of camouflaging the assembly area, if at all possible this was done away from the route of the ferries (in inlets, the mouths of incoming rivers, and in bends covered by vegetation).

The movement of the ferries through the water in crossing the river was carried out differently. The most effective was the towing of them by the BMK-60 or BMK-70 launches which were assigned predominantly to the pontoon bridge units with the N2P and TMP parks. However, there were not enough of these and for this reason the pontoon bridge troops and combat engineers were forced to employ other methods of moving the ferries in the crossing of troops and equipment: using a rope (cable) stretched across the river, by rowing as well as movement by the water current.

The duration of a ferry trip varied. Thus, on a river 200-250 m wide, in being towed by a launch, this was 15-20 minutes, and when moving with a rope or by oar it was 2- or 3-fold more and this substantially influenced not only the rate of the crossing but also the viability of the crossings.

The capacity of a ferry crossing depended upon the number of ferries of a certain capacity based at one pair of docks. Depend upon the width of the water obstacle and the method of propulsion through the water, on one ferry crossing there was from one to three ferries and on wide rivers even more. Their capacity was 5, 9, and 14 tons (the MDPA-3 and NLP parks); 30, 50 (60) tons (the DMP, N2P and TMP parks).

A ferry crossing point was usually maintained by a pontoon bridge platoon or company. On wide water obstacles up to a troop battalion was involved in

maintaining the crossings. The commander of such a subunit was also the commander of the crossing place. Aside from the crossing of troops to the opposite bank of the river, he also organized and directed the rescue service.

For increasing the viability of the ferry crossings, their location was often changed. Here they simulated the activities of the previous crossing. For example, in the crossing of the Dnieper, in the crossing area of the XXXIII Rifle Corps, after an enemy air raid the ferry crossing was moved 1 km downstream. At the former site they left one damaged ferry and periodically feigned its movement along the cable. The enemy continued making bomb strikes against the false crossing with groups of 10-15 aircraft while the crossing at the new point operated without losses. (13)

In organizing bridge crossing points, they erected not only a bridge but also prepared points for the concentration of a pontoon bridge park for floating bridges or structures (elements) for permanent bridges, the start areas for the crossing troops, they designated the start lines, they laid column tracks and roads and established control posts, bridgeheads, protection parties and diver-rescue stations. The organizing of bridge crossings had its specific features and depended upon the employed resources, enemy fire effect, the state of the river and the season.

Floating bridges of pontoon parks were erected after the concentrating of the required number of crossing equipment, when the enemy had been pushed back from the bank and was unable to fire directly at the crossing with small arms and machine gun fire. Floating bridges supported loads of from 5-9 to 50-60 tons.

The building of permanent bridges (on fixed supports) including timber pier, frame, trestle and box, began after the river had been crossed by the forward detachments. An effort was made to produce the materials and elements for such bridges in amounts of 50 percent above need.

During the summer season, wooden bridges were built basically on frame and piling supports. The rate of construction depended largely upon the number of personnel, the available equipment, enemy actions and the conditions for procuring lumber. One of the labor-intensive operations, the driving of pilings in a majority of instances due to the shortage of pile drivers, was done manually. However, with proper organization of the work and supply of materials, the bridges were built for those times rather quickly. For example, in December 1943, in the zone of the 6th Army of the Third Ukrainian Front on the Dnieper in the area of Belyay Island, two battalions from the 4th Pontoon Bridge Brigade with attached separate road-building and pontoon bridge battalions, built a 20-ton bridge some 576 m long in 46 hours of working time. (14)

Under winter conditions, when the river was covered by thick ice, the construction of wooden bridges on pilings was greatly accelerated and facilitated, as work could be carried out along the entire length of the bridge all at once (on both banks and in the middle of the river). Bridges were built in this manner in the area of Tomczice and Nowe Miesto in the crossing of the Pilica River by troops of the 1st Guards Tank Army in January

1945. For example, in the Nowe Miasto area, a bridge for loads of 60 tons and 116 m long with a roadway of 4.2 m was built in 18 hours by a pontoon company from the 2d Pontoon Battalion and the 146th Bridge-Building Battalion. (15) Floating bridges were built relatively quickly across a water obstacle covered with ice. For example, a 50-ton pontoon bridge over the Pilica River some 81.5 m long was put up in 5 hours 30 minutes by the 2d Pontoon Battalion of the 1st Separate Motorized Pontoon Bridge Regiment. (16) This was achieved due to the fact that the pontoon sections were placed directly on the ice (usually when its thickness was at least 35-40 cm) and the bridge was also assembled here. At the termination of the work the ice was broken on both sides of the bridge.

Regardless of the labor intensiveness of erecting fixed-support bridges, these were employed more and more often than floating ones. This can be seen, for example, from the data on the construction and erecting of bridges by the engineer troops of the Central Front (from 20 October 1943, the Belorussian Front) over the period from 15 August through 31 December 1943 (17) (see the Table).

Table

Number and Total Length of Erected (Built) Bridges by Engineer Troops
of Central (From 20 October 1943, Belorussian) Front
Over Period From 15 August Through 31 December 1943

Type of Bridge	Desna		Sejm		Sozh		Dnieper		Berezina	
	linear no.	m	linear no.	m	linear no.	m	linear no.	m	linear no.	m
Floating with regulation parks	4	470	4	480	13	1,114	7	1,122	3	358
Wooden on fixed supports	17	2,040	13	1,725	23	3,149	22	5,464	5	606

After the erection (construction) of the bridges, a second crucial period began, the maintaining of the bridge crossings. Around-the-clock duty was established for emergency teams of engineer troops to repair (rebuild) the bridges and eliminate minor damage, a traffic control service was organized in the aim of promptly moving troops and combat equipment to the opposite bank, an air cover was provided for the bridge crossing by the antiaircraft subunits and it was camouflaged by smokescreens set up by specially assigned forces of the chemical warfare subunits. In addition to the designated tasks, engineer, antiaircraft and chemical warfare subunits provided a combat security service for the crossing. In taking up positions for covering the bridge, they were in a state of constant combat alert. A network of protective posts was

organized along both banks of the river for securing the bridges and these were an additional direct security for the bridge crossing. Floating enemy mines were combated by specially organized protection parties which had a 45-mm gun and a medium machine gun. The gun crews were trained to fire on detected mines.(18) Sometimes floating mines were caught or held by a metal cable stretched across the river with floats attached to it.

The maintaining of the bridge crossing demanded a great effort, courage and skill on the part of the personnel carrying this out. For example, the 30-ton fixed-support bridge some 386 m long built on the Vistula at the village of Lucimja and used as a crossing from 7 August 1944 was maintained by two combat engineer companies from the 37th Combat Engineer Brigade of the 69th Army. In rebuilding the sections of the bridge destroyed by Nazi artillery and aviation, the combat engineers up to the end of August drove 54 pilings, laid 21 crossbeams, 170 spans and around 200 linear m of planking. Regardless of the bombing and shelling, reconstruction work was carried out quickly and effectively and this made it possible during the period from 8 through 22 August alone to move across the bridge in both directions 6,500 motor vehicles, 60 tanks and self-propelled artillery mounts (SAU), 5,000 wagons and much other freight.(19)

During the years of the Great Patriotic War, water obstacles were also crossed over the ice and by fording, that is, by natural crossings. In building an ice crossings, after careful engineer reconnaissance of the selected area, the condition of the ice, the procurement and assembly of available materials, the ice cover was reinforced (when necessary), approaches on both banks were built, the way to the crossing was prepared and markers set out on both sides of the route and the road to it.

For maintaining the ice crossing, a team (engineer subunit) was assigned figuring one soldier for every 10-20 linear m of the route. The team maintained the crossing in working order (cleared snow off the ice, replaced the markers and so forth), it guarded it around-the-clock and also carried out rescue work.

Fords were employed for crossing shallow rivers. The fording of a water obstacle was carried out after reconnaissance and organizing of the crossing. The preparation of a ford included: choosing an area of the bottom with solid ground; filling in detected pits and cavities with sand, rock and gravel; setting out on both sides of the ford indicators (markers, poles) or suspending ropes (held up with poles), clearing mines and other obstacles from the river bottom, building approaches and shelters for the personnel of the traffic control service and the rescue station.

A duty team was assigned for maintaining the ford. Its size depended upon the length of the ford and the intensity of troop traffic over it. From the team they assigned first of all men on duty on both banks of the river, traffic control posts, repair-reconstruction and evacuation teams. When the ford was not straight, guides were assigned.

The experience gained in the war years in building and maintaining crossings has not lost its importance under present-day conditions. It shows that the

main tasks in organizing the crossings were: choosing the sites for building them, preparing the routes to the river, the exits on the opposite bank, the preparation of local crossing equipment and the setting up of regulation equipment, the erection (construction) of bridges, the creating of shelters for the personnel of the traffic control service and the crews serving the crossing. For shortening the time allocated for organizing the crossings, of important significance was the prompt moving up of the regulation assault crossing equipment and the bridge elements to the water obstacle as well as the employing of rapid methods for building (erecting) bridges.

The maintaining of the crossings, regardless of certain particular features of their various types, was aimed chiefly at ensuring precise organization of the traffic control and rescue services (and the protection parties on bridge crossings), the repair and reconstruction of damaged crossing equipment and bridges, as well as the camouflaging and defense of crossing points against ground and air enemy attack.

FOOTNOTES

1. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 240, inv. 288464, file 5, sheets 8-32.
2. "Inzhenernyye voyska v boyakh za Sovetskuyu Rodinu" [Engineer Troops in the Battles for the Soviet Motherland], Moscow, Voenizdat, 1970, p 318.
3. TsAMO, folio 401, inv. 90384, file 2, sheets 47-63.
4. Ibid., folio 69, inv. 28970, file 56, sheet 154.
5. Ibid.
6. "Inzhenernyye voyska Sovetskoy Armii 1918-1945" [Engineer Troops of the Soviet Army 1918-1945], Moscow, Voenizdat, 1985, p 440.
7. For more detail on the tasks carried out by engineer reconnaissance, see VOENNO-ISTORICHESKIY ZHURNAL, No 3, 1983, pp 37-42.
8. TsAMO, folio 243, inv. 43914, file 26, sheets 324-326.
9. Ibid., folio 240, inv. 35393, file 1, sheets 15-50.
10. Ibid., folio 69, inv. 24679, file 15, sheets 3, 42.
11. Ibid., folio 236, inv. 42964, file 5, sheets 48-50.
12. "Rukovodstvo po forsirovaniyu rek" [Manual on River Crossings], Moscow, Voenizdat, 1942, p 43.
13. TsAMO, folio 240, inv. 288464, file 5, sheet 58.
14. Ibid., folio 243, inv. 26095, file 1, sheet 3.

15. "Sbornik dokumentov Velikoy Otechestvennoy voyny" [Collection of Documents of the Great Patriotic War], Moscow, Voyenizdat, No 30, 1957, p 176.
16. Ibid., p 175.
17. TsAMO, folio 233, inv. 217563, file 1, sheet 41.
18. "Sbornik dokumentov Velikoy...," No 30, p 117.
19. TsAMO, folio 30364, inv. 1, file 15, sheets 54-207.

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ORGANIZING REAR SUPPORT OF OPERATIONS OF AIR FORMATIONS IN YEARS OF GREAT PATRIOTIC WAR

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 11, 1986 (signed to press 27 Oct 86) pp 43-50

[Article by Candidate of Military Sciences, Docent, Maj Gen Avn V.I. Borodulin and Candidate of Military Sciences, Docent, Col (Ret) V.P. Shchukarev]

[Text] The experience of the Great Patriotic War showed that successful air operations to a significant degree depend upon the operation of the air rear services. Over the war years the rear services in organizational terms developed into an ordered system with its own units, facilities and headquarters bodies and these as a whole successfully carried out the numerous and complex tasks of rear support. The air rear units prepared over 6,000 airfields; they built around 40,000 shelters for aircraft and 7,000 command posts; more than 8,000 airfields were inspected for mining; on the order of 5 million different explosive devices were deactivated and destroyed; more than 3.8 million combat sorties were supported with the consumption of approximately 1.6 million tons of fuel and 700,000 tons of aviation ammunition.(1)

In the range of measures carried out to organize rear support, of greatest interest is the experience of improving the organizational structure of the rear services, airfield engineer and logistic support for the air formations and the supporting of their maneuvers in the course of combat. On the eve of the war, in accord with the Decree of the VKP(b) [All-Union Communist Party (Bolshevik)] Central Committee and the USSR SNK [Council of People's Commissars] of 10 April 1941, a reorganization of the aviation rear services was carried out. Here the aim was to provide high combat readiness and maneuverability of aviation in peacetime and wartime.(2) According to the new organization, the territory of the western border military districts was divided up in accord with the oblast boundaries into 36 aviation basing areas (rab). The aviation basing area became the main rear body of the district air forces. It was responsible for the tasks of not only supporting the actions of the air formations but also for developing the airfield network and stockpiling materiel.

Each such area was assigned for the rear support of the air divisions and included air bases (one per air division), an airfield engineer battalion, a

signals company and mobile aviation repair shops. The aviation bases were directly subordinate to the chief of the area and in operational terms to the commanders of the air divisions. Depending upon the number of regiments in the division, they consisted of several airfield maintenance battalions (bao).

The airfield maintenance battalion was a separate rear unit and assigned for immediate support of one air regiment of twin-engine aircraft or two regiments of single-engine ones. The basic subunits of the battalion were three airfield maintenance companies (one for the main and two for the operational (alternate) airfields). In addition, the bao included a signals company, a motor transport company and various services. The battalion commander was subordinate to the commander of the air base and in operational terms to the commander of the air regiment. The bases and bao were assigned to definite territorial areas and did not depend upon the air formations and units.

When the Great Patriotic War commenced, the rear services of the Air Forces were in the process of reorganization. In the Western Special Military District, for example, by this time only 31 bao had been organized while 32 were in the organizational stage. The experience of the first months of the war showed the unnecessaryness of the air bases. For this reason by the Directive of the Deputy People's Commissar of Defense of 24 August 1941, they were abolished while the personnel and equipment were turned over for manning the headquarters and units of the rab. (3)

The battalions were directly subordinate to the rab chiefs. An opportunity arose for the rab to be transferred in operational terms to the Air Forces commanders of the combined-arms armies. Such a reorganization was aimed at establishing mobile and maneuverable rear units not tied either to a certain territory or to certain aviation formations.

In the course of the war, the rab began to include a staff, a motor transport battalion, a head aviation dump and a field military-housekeeping dump, a mine-combat engineer service and an air defense service. All of these, as a rule, supported an air corps or two-four air divisions. For the latter rear services were not organized. The questions of their rear support were carried out by the rab and bao which had been assigned to the air regiments.

The bao was also changed in strength. However, these were particular organization and establishment changes in the aim of improving the battalion's organization and bringing it into conformity with the demands of all-round rear support for the air regiments. By the end of the war a bao included: a staff, an airfield maintenance company, a motor transport company, a signals company, mine-combat engineer, camouflage, chemical and medical services as well as supply services for food, ammunition, fuel, aviation-technical and clothing. For maintaining the airfields in operational readiness in the wintertime the battalions received airfield technical companies from the rab.

The rearming of the Air Forces which commenced in 1940-1941 with new types of aircraft required a reconstruction of the existing airfields including: an increased size of the flight fields to 1,200-1,400 m in length and 100-400 m in width and the building of artificial landing strips on them as well as the construction of new ones. Here two-thirds of the airfields set for

reconstruction and the construction sites were in the west of the nation where the airfield network had been poorly developed and did not provide dispersed basing of the aviation. Unfortunately, the planned work had only been partially carried out and was continued even in the course of the fighting.

In the defensive operations of the first and partially the second periods of the war, the preparation of airfields usually started ahead of time in the rear area a distance of 150-200 and more kilometers from the front line. The airfields were initially readied to receive bomber aviation and then were to be employed for servicing fighters and ground attack planes.

For promptly readying the airfield network in offensive operations, operational airfield groups were established; in the aim of quickly reaching the areas for the construction and reconstruction of the airfields, the airfield engineer battalions and the reinforced airfield technical teams moved directly behind the battle formations of the tank troops; with the permission of the front commanders, forces from the ground troops and the local population were involved in this work.

The operational airfield groups consisted of three-four airfield engineer battalions, several search parties (two or three from each battalion), a mine clearing detachment (from the personnel of the mine-combat engineer services of the rab and bao) and medical personnel. Each of these was assigned three or four PO-2 aircraft, one radio and five or six motor vehicles. The operational groups were employed on a centralized basis on the level of the air armies or operated according to the plans of the rab. They were headed by representatives of the leadership of the airfield construction sections (air armies and rab) and the airfield engineer battalions. Construction work was carried out by the forces of the airfield engineer battalions.

A majority of the airfields readied in the war years was dirt ones. An average of 2 or 3 days was spent on building them. In 1944-1945, it was possible to shorten this time to 1 day. For example, in the course of the Vistula-Oder Operation, eight airfield engineer battalions built 55 airfields and rebuilt 25 for basing the formations and units of the 16th Air Army. An average of 20-25 hours was spent preparing a single dirt airfield and considering the time for moving the battalions to a new construction site, 36 hours.(4)

During the war years, a matter of particular concern for the Air Forces Command was the ensuring of operational readiness of the airfields for handling flights in the spring and autumn muddy season. During these periods, there was extensive construction of simplified artificial landing strips (ground and gravel, ground and crushed rock, ground and slag and more rarely wooden). Here local building materials were employed. Thus, on the Karelian Front in May 1942, in a short period of time an airfield was built with a wooden landing strip. Around 50,000 cubic m of lumber were spent on building it. Constructed on a peat bog, it proved completely effective, supporting the operations of air units from the 7th Air Army in any weather.(5)

Metal landing strips also proved effective. They were laid for the first time in 1944 on three Ukrainian airfields. The use of metal prefab surfaces

accelerated the construction of new airfields and improved their operating qualities. An important property of this surface was the possibility of its reuse. For example, in the East Prussian Operation in March 1945, the 3d Air Army in just 10 days removed the metal plates from one airfields, transported them over a distance of 175 km and laid them at another.

The preparing of landing strips on autobahns also merits attention. In the spring of 1945, on one of the sections of the Berlin-Breslau Autobahn, in 2 days a landing strip was prepared with dimensions of 1,500 x 22.4 m. For building it they transported in and laid 240 cubic m of sand, 500 cubic m of crushed rock and 150 concrete slabs. Some 688 aircraft sorties were made from it over a period of 18 days.(6)

In the course of the offensive operations, Soviet aviation made extensive use of airfields captured from the enemy. Due to this, from the experience of many air field forces, up to 30 percent of the total demand for airfields was satisfied. However, the Nazis in retreating destroyed and eliminated the remaining airfields. The dirt landing strips were plowed up (during the warm season) or mined, while artificial ones were blown up using powerful land mines or large-caliber bombs. As a result of the explosions on the fields, craters were formed with a diameter of around 20 m and a depth up to 6 m. Such airfields were rebuilt, as a rule, by the airfield engineer battalions. The personnel and equipment of the bao as well as the local population were involved in this work. The mine-combat engineer service was concerned with the mine clearing.

The commanders and staffs devoted serious attention to carrying out engineer measures to camouflage the air unit bases. The work of concealing active airfields or individual installations, the equipping of dummy airfields and the simulating of their activity was carried out by the camouflage service of the bao. The carrying out of a range of camouflage measures made it possible to protect a large number of aircraft, personnel, materiel and facilities for airfield technical support. Thus, during the period from 1 May 1942 through 1 May 1945, out of the 2,246 recorded instances of raids by enemy aviation on the base facilities of the air units, two-thirds was carried out against dummy airfields.(7)

The supply of the air formations with weapons, ammunition and aviation technical equipment was carried out on a centralized basis through the Air Forces rear services while fuel, lubricants, food, uniforms and other articles of combined-arms supply came through the rear services of the district (front).

The supplies of aviation materiel were stockpiled according to the principle of their maximum concentration in the border districts. For this reason, by the start of the war rather large amounts of ammunition had been stockpiled at the airfields and dumps. For example, around 70 percent of the supplies of bombs in the European USSR was concentrated here. In echeloning these supplies in depth, no consideration was given to the fact that the enemy could attack by surprise and the need would arise of evacuating them. Because of this even during the first days of the war, much ammunition was lost. As of 1 August 1941, the air units of the Northwestern, Western and Southwestern

Fronts expended only 18 percent of all the bomb supplies in combat operations while the remainder was blown up in the retreat or captured by the enemy. (8) Approximately the same thing happened with other materiel.

In order to avoid large and unjustified ammunition losses, the chief of the Soviet Army General Staff in his directive of 10 September 1941 demanded:

- a) That a minimum amount of ammunition be kept at the airfield in order to meet the needs of 2 or 3 days of operations and in the event of necessity could be transported out by the bao transport; the remaining supplies were to be kept at the head dumps and chiefly in the front aviation dump;
- b) The front aviation dumps with the basic supplies of ammunition should be echeloned to a sufficient depth in the rear within 200-300 km from the line of contact with the enemy;
- c) The head aviation dumps should store operational ammunition within the limits of the current 10-day demand of the units based at the given dump. (9)

Somewhat later, in the aim of introducing firm order in the expenditure and safekeeping of materiel, two zones were established for the echeloned placement of the aviation rear bodies: the first at a depth of 50-150 km from the front line and the second at a depth of 150-400 km. (10) The first zone encompassed the basing of the operational air units. The second was the alternate. On the territory of the latter they readied alternate airfields for maneuvering and kept the main supplies of materiel.

In 1943, in accord with the order of the USSR NKO [People's Commissar of Defense], in the rab they organized sections of combined-arms supply as well as field military-housekeeping dumps. The air units located on the territory of the rab were signed up for all types of supply. With the organizing of these bodies, a unified system was created for supplying the formations and units with the aviation and combined-arms types of materiel.

In the various operations, depending upon the duration of the preparatory period, the transport conditions and capabilities as well as the overall supply situation of aviation by the start and in the course of operations, the amounts of the supplies of materiel in the rear elements varied significantly: at airfields from a day to 5 days, at the head aviation dumps to 3 or 4 days need for all aviation units served by the rab.

The experience of the rear support of the aviation formations showed that their consumption of basic supplies in each of the first 5-6 days of combat in the operations was significantly greater than in the subsequent ones. During this period the aviation units operated, as a rule, from the initial basing areas and surplus supplies of ammunition and fuel were established at the airfields. This was not always advisable, since in a number of instances the air units did not consume them before relocating.

The transporting of materiel in the basing areas of the air armies was carried out by rail (to the army and head aviation dumps of the rab and the individual airfields) and motor transport. However, under the conditions of active enemy

air operations against rail junctions, the slow rebuilding of the tracks and the shortage of rolling stock, the share of rail shipments declined and motor transport became the basic means of delivery, particularly for the airfields. The shortage of vehicles and their low load capacity did not satisfy the needs of aviation. For this reason, often upon the decision of the chiefs of the rear services of the air armies, the transport of the bao, rab and air army was employed on a centralized basis by establishing composite motor vehicle columns. In a number of instances, all tanker transport was employed thus for supplying the air formations with fuel.

One of the important tasks for the rear services during the war years was that of supporting the maneuver of aviation. For carrying this out it was essential to quickly ready the necessary number of new airfields, to set up the aviation rear units at them and establish supplies of materiel. A great deal depended upon the promptness and organization in relocating the bao.

There were also shortcomings. Thus, the experience of relocating the rear units of the 2d, 16th and 17th Air Armies from Kursk to the Dnieper showed that the already limited capabilities of the transport were irrationally utilized as the bao transported a great deal of unessential freight. For this reason, the rear services command of each air army took measures to maximally free the battalions from transporting surplus supplies. In particular, the order for the rear services of the 16th Air Army of 17 October 1943, in the aim of effectively employing motor transport and instilling order in the movement of the units, demanded that they be strictly guided by the established transportable supplies, stop the transporting of cumbersome staff furniture and equipment, to determine the degree of essentialness of the things carried by the servicemen, the rank and file and NCO's were to be sent on foot while the motor transport for the headquarters of the rab and the staffs of the bao was to be assigned by a schedule approved by the air army commander.(11)

In certain air armies attempts were made to permanently assign the bao to the air regiments or several battalions to one air division. Such a situation did not improve and even worsened the organization of the relocating of the regiments and the moving of the battalions. Thus, in the 8th Air Army the commanders of the air corps and divisions moved the battalions independently. As a result, the rear services staff of the air army had no notion of the actual position of the bao and was forced to send out its representatives on aircraft to establish their location. Moreover, the rab were not strictly distributed to the air army corps and sometimes a portion of the regiments was supported by one area and the others by another. As a result the commander of an air corps had to deal with two rab chiefs.

The load factor on the battalions also varied. For example, in September 1943, the 691st bao of the 8th Air Army served the headquarters of an air corps, the headquarters of an air division, two air regiments and a separate squadron. The battalion commander had dealings with five superiors to whom, according to the existing situation, he was subordinate on questions of rear support.

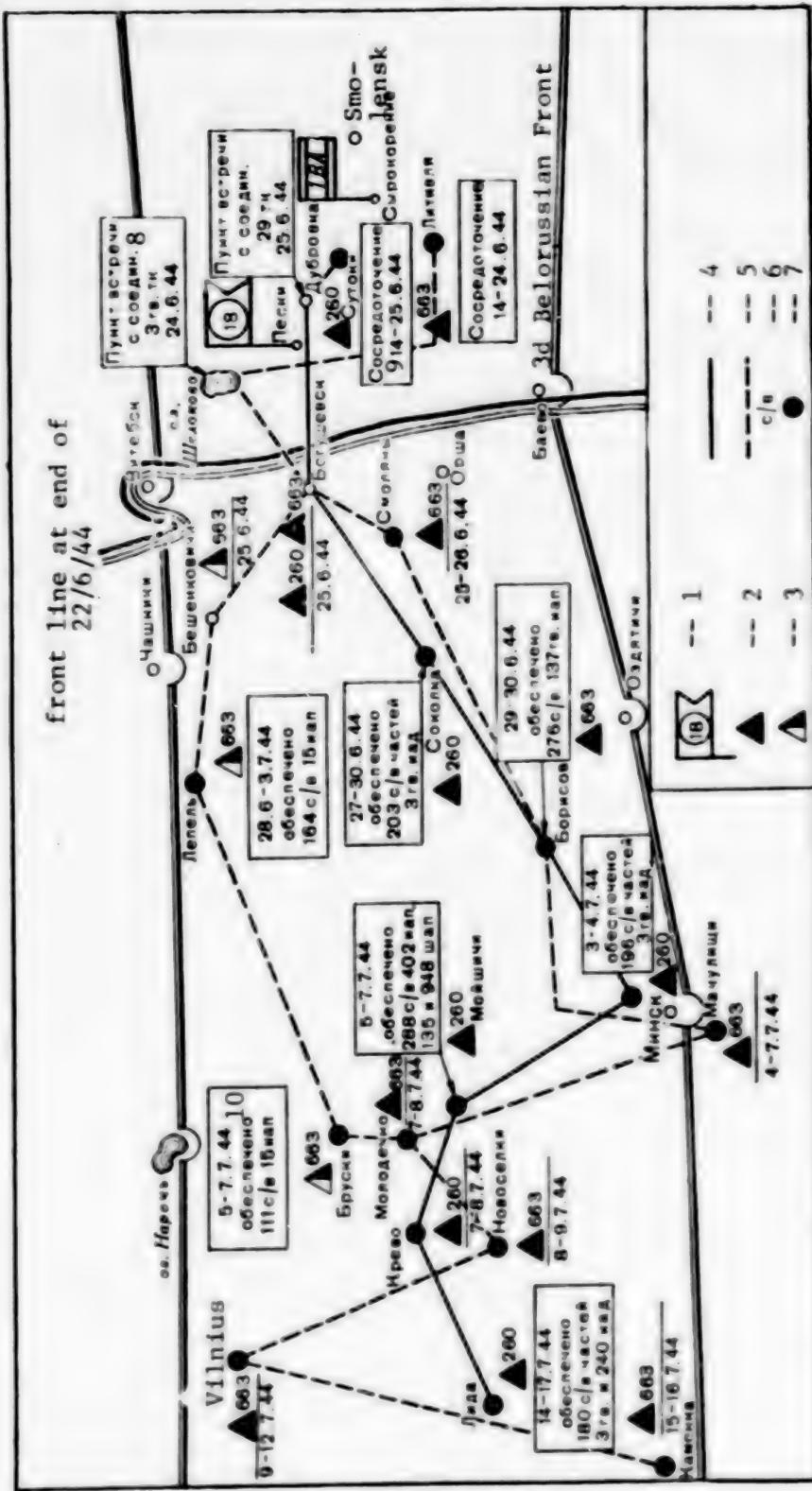


Diagram for the Movement of the 260th and 663d bao of the 18th rab for Supporting the Relocation of Air Units of the 1st Air Army Cooperating With Formations of the 5th Guards Tank Army in the Belorussian Operation

Key:
 1--Headquarters of 18th rab
 2--Basic personnel of bao
 3--Commandant's office of b
 4--Move of 260th bao
 5--Move of 663d bao

- 6--Aircraft sorties
- 7--Airfield
- 8--Rendezvous with
- 9--Concentration
- 10--Supported

By 1944, there were significantly fewer such shortcomings. From this time until the end of the war, in all the air armies the rab in operational terms were put under the commanders of the air corps for a certain period of operations. Such assignment provided an opportunity to plan and effectively carry out the relocating of the air units and move the bao.

In the actual operation of the aviation rear services, two methods were worked out for supporting the airfield maneuver: by commandant's offices assigned from the bao and by reserve battalions (see the Diagram). A reserve was able to be established even regardless of the fact that in all the air armies in any operation the total number of battalions was fewer than air regiments. For example, in the 16th Air Army by the start of the Berlin Operation there were 94 air regiments. Some 72 battalions were engaged in servicing them. Here 19 air regiments equipped with twin-engine aircraft were constantly supported by 19 battalions and maneuvering by the commandant's offices assigned from them. The remaining 75 air units equipped with single-engine aircraft were supported by 53 bao. By having 38 of these begin servicing (considering purpose and capability) two regiments each, the rear services chief of the 16th Air Army established a reserve of 15 bao for maneuvering the aviation in the course of the operation.

The relocating of the air formations from one front to another and from the interior of the nation was also supported by rab, bao and other rear units. Here in a majority of instances rail transport was employed for moving them. The following data can show the successful carrying out of this task, in particular in the third period of the war: just in July 1944, 10 rab headquarters, 65 bao and over 20 other units were moved between fronts, while 2 rab headquarters, 15 bao and 5 other rear units were moved from the interior of the nation. (12)

The experience of the Great Patriotic War has shown that the difficulties existing at its start in rear support for the air operations involved the imperfection of the rear organizational structure, planning shortcomings and the poor development of the airfield network in the border military districts. Subsequently, due to the centralizing of the structuring of the rear services for the airfield forces and their control, and because of the organizational independence granted to the rear bodies (rab and bao) in settling a majority of questions, it was possible to ensure uninterrupted supply of the aviation divisions with all types of materiel and substantially increase their maneuverability.

The locating of sites and the construction of new airfields on them as well as the reconstruction of airfields captured from the enemy were carried out on a centralized basis on the air army scale. For carrying out this task, operational airfield groups were organized. In addition, the forces of the bao and the local population was involved in this.

Supplies of materiel at the airfields were organized considering the duration that the aviation units would be based at them, the planned combat intensity and the capabilities of the bao to transport the supplies in moving. The delivery of supplies to the forward airfields was carried out on a centralized

basis. Here they employed the motor transport of all the rear elements of the rear army.

The relocating of the aviation units in the course of combat was carried out by the commandant's offices and the reserve battalions. Rail and motor transport were employed for the move. The standards for their allocation were strictly observed. The turning over of the rab for a certain period of time for operational subordination of the air corps commanders provided an opportunity to plan ahead of time for the relocation and carry it out quickly. Thus, over the war years, the rear units gained rich experience in supporting the actions of the air formations in a varying situation and this has not lost its practical importance at present. This applies above all to the organizational independence of the rear services of the air formations and units, to the establishing of rear groupings for autonomous support of operations, the centralized preparation of the airfield network on a scale of the aviation field forces and to close cooperation of the aviation rear bodies with the rear bodies of the Ground Troops.

FOOTNOTES

1. "Trudy Krasnoznamennoy Voyenno-vozdushnoy akademii" [Works of the Red Banner Air Force Academy], Monino, No 8 (94), 1958, p 97; "Sovetskaya aviatsiya v Velikoy Otechestvennoy voyni 1941-1945 gg. v tsifrakh" [Soviet Aviation in the Great Patriotic War of 1941-1945 in Figures], Moscow, Izd. Glavnogo shtaba VS, 1962, pp 12, 16.
2. TsAMO DSSR [Central Archives of the USSR Ministry of Defense], folio 35, inv. 30807, file 23, sheets 15-23.
3. Ibid., inv. 283223, file 5, sheets 2-3.
4. "Inzhenerno-aerodramnoye obespecheniye aviatsii v Velikoy Otechestvennoy voyni 1941-1945 gg." [Airfield Engineer Support of Aviation in the Great Patriotic War of 1941-1945], Moscow, Voenizdat, 1952, p 14.
5. Ibid., pp 136-146.
6. Ibid., p 165.
7. "Trudy Krasnoznamennoy Voyenno-vozdushnoy...," No 8 (94), p 97.
8. Ibid., p 55.
9. TsAMO, folio 35, inv. 225933, file 1, sheets 72, 73.
10. Ibid., inv. 283223, file 8, sheets 56, 57.

11. Ibid., folio 368, inv. 213579, file 1, sheets 403, 404.
12. Ibid., folio 35, inv. 226136, file 34, sheets 36-39; inv. 279157, file 3, sheets 3, 4.

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PARTY-POLITICAL WORK AT EXERCISES, MANEUVERS

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 11, 1986 (signed to press 27 Oct 86) pp 51-55

[Article by Doctor of Historical Sciences, Docent, Col V.G. Malikov, published under the rubric "Party-Political Work"]

[Text] "Considering the difficult international situation and the growing aggressiveness of the reactionary imperialist circles," emphasized the Political Report of the CPSU Central Committee to the 27th CPSU Congress, "the CPSU Central Committee and the Central Committee Politburo have given unflagging attention to the nation's defense capability and the combat might of the USSR Armed Forces...."(1) All the activities of the Army and Navy commanders, staffs, political bodies, party and Komsomol organizations are subordinate to carrying out this task. They have been constantly concerned with improving the field skills of the personnel and are seeking high quality exercises and maneuvers.

In being a higher form of troop combat training, exercises and maneuvers at the same time are a new step in the development and enriching of the content, forms and methods of party-political work. This has been aided by the major exercises and maneuvers held in recent years and among which a special place is held by "Dnepr" [Dnieper], "Dvina," "Yug" [South], "Sever" [North], "Kavkaz" [Caucasus], "Karpaty" [Carpathians], "Zapad-81" [West-81], "Zapad-84" [West-84] and the joint command-staff and troop exercises of the Warsaw Pact member armies such as "Soyuz" [Union], "Bratstvo po oruzhiyu" [Fraternity in Arms], "Druzhba" [Friendship], "Shchit" [Shield] and others. Their distinguishing feature has been that they were carried out under a difficult situation as close as possible to combat. In the course of the exercises, long marches were made, offensive and defensive actions were conducted, assault forces were landed and major water obstacles were crossed. Here they worked out the employment of various types of weapons and combat equipment and the commanders and staffs improved their skills in organizing cooperation, the all-round support of battle and an operation and actual command of the troops in the course of operations.

The party-political work aimed at improving the field skills of the troops is carried out during the entire training year. However, before the exercises

and in the course of them this is intensified and concretized considering the set tasks.

Ahead of time, prior to leaving for the field, the political bodies together with the staffs carry out extensive preparatory work among the personnel. Indicative in this regard is the experience of the political section from the Taman Guards Motorized Rifle Division imeni M.I. Kalinin in preparing for the "Dvina" Maneuvers at which the formation was assigned an important role. A separate plan for party-political work was drawn up for each stage of the maneuvers here. The plan set out the main tasks for the commanders, the political workers and the party organizations in mobilizing the men to act successfully in the course of the maneuvers, the most important organizational and political indoctrination measures and the control procedures over their execution. In accord with the plan during the preparatory period assemblies were held for the political workers, the party and Komsomol activists. At the meetings they studied the experience of party-political work at previous maneuvers and exercises, and examined in detail the duties of the political workers in bringing the units to a full combat readiness as well as in each stage of the maneuvers and in different types of combat. (2)

The command and the political section of the Red Banner Motorized Rifle Division imeni Verkhovnogo Soveta Grazinskoy SSSR [Georgian Supreme Soviet] in preparing for the "Dvina" Maneuvers conducted a meeting for the party aktiv and conferences where they discussed the tasks of party-political work in the exercises and the ways for ensuring its effectiveness, continuity and concreteness. Meetings with veterans from the division and participants of the Great Patriotic War were held in the aim of studying combat experience. The political section prepared and duplicated in a large run information on the campaign record of the formation. (3)

In working for concreteness and effectiveness of party-political work in the "Dvina" Maneuvers, the political workers, the party and Komsomol activists carried out it in a differentiated manner and focused their main efforts on carrying out the most important tasks. Here particular attention was paid to the training of the officers. With them they organized the study of the demands of the order concerning the conduct of the exercise and the directive of the Main Political Directorate, the combat manuals and materials of the previous major exercises, while theoretical colloquiums and conferences were also held. Advanced experience was actively propagandized and for this extensive use was made of talks by the best commanders and political workers with the young officers.

Effective work was carried out with the soldiers and NCO's including tank troops, artillery troops, reconnaissance troops, signal troops, men from the engineer troops and rear subunits as well as other specialists. Due to the fact that in the exercise the troops were to make long-distance moves, a great deal was done to train the driver personnel. In particular, beneficial were the technical conferences for the vehicle and tank drivers organized with the direct participation of the political workers and activists where they examined the particular features of operating and driving motor vehicles, various combat vehicles and tanks under winter-spring conditions on Belorussian territory. The private and NCO personnel in the political

exercises studied the subject "Tactical Exercises -- A Higher School for Improving Combat Skill. An Excellent Fulfillment of the Tasks in the Forthcoming Maneuvers is a Combat Report of the Men for the Lenin Jubilee."(4)

In the exercises, great importance was given to the correct placement of the political workers, the party and Komsomol aktiv. Officers from the political section of the Taman Guards Motorized Rifle Division imeni M.I. Kalinin spent a large portion of the time directly in the units. They aided the commanders and political workers in carrying out organizational and ideological-political work, they instructed the activists, and each day submitted to the political section information on the work done, the political and morale state of the personnel, on outstanding men, on detected shortcomings and measures taken to eliminate them.

Effective, continuous and concrete party-political work was one of the crucial conditions for the successful carrying out of the tasks of the maneuvers by the personnel of the units and subunits. The men demonstrated courage, boldness and tenacity and the ability to act in modern combat and skillfully employ the combat equipment and weapons.

In mobilizing the communists and Komsomol members and all the personnel to successfully carry out the tasks of the exercises an important role is played by the party and Komsomol meetings conducted during the preparatory period in the primary and company organizations and by the instructor-procedural exercises with the various categories of commanders, political workers, the party and Komsomol aktiv on the questions of party-political work under field conditions. Thus, prior to the start of the "Berezina" exercises, party and Komsomol meetings were held in the units and subunits involved in them and here they discussed the tasks of the communists and Komsomol members in the forthcoming combat training. For example, the meetings were held actively in the Guards Motorized Rifle Regiment under the command of Guards Lt Col G. Gurin. The unit's personnel adopted high socialist obligations for all stages of the exercise. The commanders, political workers, the chiefs of the services and branches of troops as well as the party and Komsomol activists did a good deal so that the exercise participants entered combat training enriched with the experience of the best specialists who had mastered the equipment and weapons, thereby successfully carrying out their obligations.

During the period preceding the "Zapad-81" Troop and Naval Exercises, great attention was given to ensuring the rapid breaking in of personnel called up from the reserve. They organized political and educational procedural training for the reserve officers, they were given political information and instructed on the questions of agitation-propaganda and mass political work. In the motorized rifle division involved in the exercises its commander spoke to the officers. He explained the military-political situation and the set tasks. The chief of the political section held a talk on the campaign record and traditions of the formation. The officers heard lectures "On the International Situation of the USSR," "On the Present Stage in the Development of the Soviet Armed Forces" and "On the Tasks of Increasing Political Vigilance and Combat Readiness."

For political workers who did not have sufficient experience, exercises were conducted to study the forms and methods of ideological work under field conditions. These questions were examined in the instructor lectures, reports and colloquiums. The political section held a seminar on the question "The 26th CPSU Congress on Strengthening Ideological Work Under Present-Day Conditions. Activities of Commanders and Political Workers, the Party and Komsomol Aktiv in Organizing Ideological Work in a Combat Situation."

Prior to the exercises much was done to increase the effectiveness of the political exercises with the soldiers and NCO's. These were conducted in the subunits according to a special program. The non-T/O propagandists were helped in preparing for the exercises. Each group leader was provided with procedural materials on all subjects worked out by lecturers of the political directorate as well as by other essential agitation-propaganda, procedural and reference literature. The files of the political workers and propagandists included pamphlets prepared by the Main Political Directorate and the political directorates of the Ground Troops and the district. There was the following reference materials: "The Belorussian SSR," "The Twice Order-Bearing Minsk Oblast," "The Hero City Minsk," "The Vitebsk Order-Bearing Oblast," "Feats of the Frontline Veterans" -- around 20 different aides.

The unified political days and the personal involvement of the leadership in agitation-propaganda work had a great influence on raising the activeness of the men and mobilizing them to successfully carry out the set tasks. On the eve of the "Zapad-81" Exercises, the units and subunits of the Belorussian Military District held two unified political days which involved scores of generals and officers. The men of the guards motorized rifle division met with the commander of the Red Banner Belorussian Military District, Army Gen Ye.F. Ivanovskiy, the military council member and chief of the district political directorate, Col Gen A.V. Delalyuk as well as other officers from the district staff and headquarters.(5)

Also proving effective were the political hours held in the subunits. This form of work arose out of front experience and has undergone the test of practice in our days. In the course of the exercises in the units and subunits of one of the formations, for the warrant officers ["praporshchik"], NCO's and soldiers, they organized political hours on the subjects: "The 26th CPSU Congress on the Growing Aggressiveness of Imperialism and the Necessity of Increasing Vigilance and Combat Readiness," "Tactical Exercises -- A School of Combat Skill" and others.

In the exercises great attention was paid to providing political information for the personnel. In a guards tank regiment, even before leaving for the field, the forces of the agitation and propaganda aktiv were so distributed that they could have an influence on each man. Each day the activists were instructed and the scope of the work was set for them in informing the personnel for the day or for the period of a specific stage of the exercises. Each of them was issued a selection of materials of "Radio Moscow Announces." In addition to this, the agitators were given specific tasks in acquainting the men with documents and other materials published in the central and republic press and the district newspaper VO SLAVU RODINY. In the course of the exercises the agitators, in particular, organized a reading and discussion

of the article by the USSR minister of defense and materials such as "The Neutron Bomb Threat to Europe," "In a Drive for Military Superiority," "NATO -- The Weapon of Intimidation, Aggression and Plunder" and others.

Characteristic in the party-political work in the "Zapad-81" Exercises was the extensive use of technical propaganda devices and mass information media such as movies, television and radio. Broadcasts of the local radio centers were devoted to the experience of the leading commanders, the best specialists and the right flankers of the competition. Thus, in a motorized rifle regiment, one of the broadcasts was devoted to Sgt S. Makarenko. During the exercises, a major event occurred in the life of the leading soldier. At a party meeting held in the field he was accepted as a candidate member of the CPSU. The regiment commander sent a congratulatory letter to the parents of the excellent sergeant. All of this was described over the local radio. Happiness, inspiration and a readiness to carry out any given task -- these were the feelings with which the squad commander led his subordinates into battle. And he carried out his duties in an exemplary manner. (6)

Instructive experience in ensuring effective ideological and political influence on the personnel in the course of combined-arms exercises has been gained in the units of the Rogachev, Red Banner, Orders of Suvorov and Kutuzov Guards Motorized Rifle Division imeni Verkhovnogo Soveta BSSR [Belorussian Supreme Soviet] (Belorussian Military District). Officers from the formation's political section, the political workers and the secretaries from the party committees and bureaus of the units trained the agitators, the Komsomol group organizers and other activists in the actual conduct of talks and in collecting up-to-date information and providing it to the personnel. In the course of the combat training these men, in conscientiously carrying out social assignments, ensure a constant influence on the various categories of servicemen, including those operating away from the subunits. (7)

The party and Komsomol activists of tank regiment X acted with initiative and skill during the "Zapad-84" Exercise. Due to the concern of the commanders, the political workers and the party committee in the unit, they were thoroughly prepared and supplied with everything necessary to work with the personnel under field conditions, including: special instructions and aides, blanks for combat and express leaflets, materials on the organization, weapons and tactics of probable enemy subunits, on the nature of the training area and other reference aids. A personal example, a talk, a challenge, advice, a comment and comradely aid -- these are the most effective forms in the work of the activists and which contributed largely to the mobilizing of the tank troops in rapidly executing the march, in prompt and high-quality execution of all measures in the concentration area and decisive actions on the offensive.

The commanders, the political bodies and the party organizations have endeavored to improve the forms and methods of their activities under field conditions. In the Transbaykal Military District, for example, the practice of organizing mobile posts for supporting party-political and cultural educational work for the period of the exercises has proven effective. Political information sessions, talks and meetings are conducted here during refuelings, the technical maintenance of combat vehicles, in warming up, eating and in providing medical services for the men. The information

bulletins mounted on stands, the photo newspapers and other materials of visual agitation describe the deeds of the pacesetters as well as news in the nation and abroad. (8)

Upon completion of the exercises, the political bodies and the deputy commanders for political affairs, on the basis of a general analysis of the actions of the troops in the field, analyze party-political work in detail, its effectiveness, the activities of the political workers and aktiv and draw conclusions for the future. Thus, in the Kiev Military District, the results of party-political work in the course of the exercises are discussed at special meetings of the political workers and the secretaries of the party and Komsomol organizations. Seminars are held in the units with the various categories of the party and Komsomol aktiv and here advanced experience is studied.

Individual and collective talks as well as special issues of the wall, radio and photo newspapers are devoted to the results of the exercises. The dissemination and reinforcing of the acquired experience and the mobilizing of the personnel to further improve their combat skills are aided by evenings devoted to celebrating the pacesetters who were winners in the socialist competition, by sending congratulatory letters to the parents of men who excelled in the exercises and by photographing the best soldiers and NCO's in front of the unfurled colors of the unit and entry in the Honor Book.

The organizing and execution of party-political work in exercises is a creative process requiring great initiative, flexibility, efficiency and tenacity as well as the search for the most effective forms and methods of indoctrinating and training the personnel. A constant improvement in this work under field conditions is one of the powerful means for further increasing combat readiness.

FOOTNOTES

1. "Materialy XXVII syezda KPSS" [Materials of the 27th CPSU Congress], Moscow, Politizdat, 1986, p 62.
2. "Politorgany Sovetskikh Vooruzhennykh Sil: Istoriko-teoreticheskiy ocherk" [Political Bodies of the Soviet Armed Forces: Historical-Theoretical Essay], Moscow, Voenizdat, 1984, p 305.
3. "Partiyno-politicheskaya rabota v Vooruzhennykh Silakh SSSR 1918-1973 gg. Istoricheskiy ocherk" [Party-Political Work in the USSR Armed Forces 1918-1973. Historical Essay], Moscow, Voenizdat, 1974, p 335.
4. "'Dvina'. Voyskovyye maneuvry, provedennyye na territorii Belorussii v marte 1970 goda" ["Dvina." Troop Maneuvers Conducted on Belorussian Territory in March 1970], Moscow, Voenizdat, 1970, pp 17-18.
5. KRASNAYA ZVEZDA, 8 September 1981.

6. "'Zapad-81'. Ucheniya voysk i sil flota 4-12 sentyabrya 1981 goda" ["Zapad-81." Troop and Naval Exercises of 4-12 September 1981], Moscow, Voenizdat, 1982, p 53.
7. KRSNAYA ZVEZDA, 5 September 1981.
8. Ibid.

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CONTRIBUTION OF MILITARY HISTORIANS TO DEVELOPMENT OF SOVIET MILITARY, HISTORICAL SCIENCE

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[Unattributed interview with Corresponding Member of the USSR Academy of Sciences, Lt Gen P.A. Zhilin, chief of the Military History Institute of the USSR Ministry of Defense, published under the rubric "Our Interviews"]

[Text] Among letters received by the editors there are those the authors of which ask about the Military History Institute of the USSR Ministry of Defense. Some readers are interested in the history of the Institute's founding, while others are curious about the organization of its work or the problems which are being investigated here. Some even feel that this is an institution of learning and request information on the admission rules.

In meeting the requests of our readers, an editorial co-worker has met with the Institute's chief, Corresponding Member of the USSR Academy of Sciences, Lt Gen P.A. Zhilin, and asked him to reply to certain questions.

[Question] Comrade Lieutenant General! When was the Military History Institute founded and for what purpose? What problems does it solve?

[Answer] The Military History Institute has existed now for 20 years. On 27 August 1966, the CPSU Central Committee adopted a decision to establish our scientific research facility and defined its tasks. The Institute was established in the aim of further widening and raising the theoretical level of scientific research in the military history area, improving work in the military patriotic indoctrination of the workers and strengthening the struggle against the bourgeois falsifiers of the military history past of the USSR.

The founding of the Military History Institute shows the unflagging attention paid by the CPSU and the Soviet government to studying and generalizing the military experience of defending our motherland as well as military history research and propaganda activities.

The range of questions confronting the Institute is rather broad. It has been instructed to participate in working out the questions of the Marxist-Leninist

methodology of military history, investigating the military history problems of the Great Patriotic War, studying the history of the military organizations of the Russian proletariat and the experience of its armed struggle. In the plans for scientific research of the Institute a significant place is held by generalizing the military history experience of revolutionary wars and uprisings of suppressed classes and primarily the experience of the Civil War and military intervention in the USSR, as well as national liberation wars which have been waged by our and other countries. Also investigated are the most urgent problems of foreign military history, the main problems of military art and so forth.

The Institute has also been entrusted with coordinating military history research throughout the nation. This is an important task. A special scientific council is concerned with this. It provides leadership over research on military history questions and has set out a program of this research for the future at other scientific institutions and institutions of learning, thereby providing them with scientific procedural aid. This excludes parallelism and duplication in the investigating of problems as well as the elaboration of questions which are not of pertinent historical-theoretical and practical significance. We maintain ties with 460 scientific institutions and organizations. The subjects of more than 2,200 scientific works have been investigated and approved over the passed time.

Our historians take an active part in propagandizing military history knowledge and military-patriotic indoctrination of the workers, particularly the young, employing mass information media and giving lectures and reports in the troop units and on ships, at enterprises and institutions. In bringing out the heroic past of our motherland, the military scientists during this time have given around 7,000 lectures. They have carried out and are carrying out extensive work in helping to establish military history monuments, including the Stalingrad Battle Memorial, the State Museum for the Defense of Moscow, a memorial complex in Kiev, the Kursk Salient Monument and the panorama of the Prokhorovka Tank Engagement in Kursk and Belgorod and so forth. At present, our scientists are actively helping in establishing the Victory Monument on Mount Reverence in Moscow.

Extensive work is being carried out in editing the manuscripts of military history works, military memoirs and artistic-documentary works on the Great Patriotic War. We have provided scientific consultation for many historical fiction works by Soviet writers including the novel of A. Chakovskiy "Blokada" [Blockade] and the novel of I. Stadnyuk "Vojna" [War], the documentary stories of V. Karpov "Polkovodets" [Captain], Ye. Dolmatovskiy "Zelenaya brama" [Green Brahma] and others. The military historians have also been consultants for numerous documentary and artistic films on military history subjects, in particular the widely known 20-series saga "The Great Patriotic War" and the 15-series film "The Strategy of Victory."

The Institute has provided significant aid to veterans and investigators in clarifying events of the military history past.

[Question] What have been the main results of the Institute's activities recently?

[Answer] Twenty years is a comparatively short time but sufficient to sum up certain results of our scientific research activities. It can be said that recently the Institute has developed as a major scientific research and coordinating military history center known not only in our nation but also far beyond. In the Soviet Union, this is the head organization where such research is conducted. For this reason it is understandable that a large portion of the scientific product related to the study of the military history past is prepared within the Institute's walls or with its direct involvement.

Our military historians have prepared and published over 300 scientific research works, popular books and pamphlets. The largest number of them has been devoted to the history of the Great Patriotic War and World War II, to the military theoretical heritage of the founders of Marxism-Leninism, to the history of the Civil War in the USSR and to foreign military history. Over 50 have been translated into foreign languages and published in many nations of the world. The total run at present is over 13 million copies. I would like to emphasize that our books reach a broad range of readers.

An important result in the Institute's activities over these years has been the working out of the fundamental scientific work "Istoriya vtoroy mirovoy voyny 1939-1945" [History of World War II of 1939-1945] in 12 volumes and carried out jointly with the Marxism-Leninism Institute under the CPSU Central Committee, and the institutes of USSR history and general history of the USSR Academy of Sciences. This work for the first time from Marxist positions thoroughly and completely analyzes all the major political, military, economic, ideological and diplomatic problems and events of the last war. On a basis of the achievements of historical science in the USSR and other countries, new materials and documents from Soviet and foreign archives, the preparation and course of World War II have been shown as well as the decisive contribution of the USSR to victory over the aggressors, the lessons and consequences of the war and their importance for the modern world.

Overall leadership over the preparation and publishing of the work was provided by the Main Editorial Commission which included prominent Soviet scientists and military leaders. Around 400 scientists participated in working out the problems and they were specialists from different areas of knowledge. The work "Istoriya vtoroy mirovoy voyny 1939-1945" is a major achievement by Soviet historical science. It was published by Voyenizdat in a run of 330,000 copies, it has been translated in Bulgaria, Hungary, the GDR, Poland and Czechoslovakia and is distributed by subscription in 39 states.

A significant amount of work has been done in creating another fundamental military history work, "Sovetskaya Voyennaya Entsiklopediya" [Soviet Military Encyclopedia] in 8 volumes and the preparation on its basis of the "Voyennyy entsiklopedicheskiy slovar" [Military Encyclopedic Dictionary]. All the work was carried out under the general leadership of the Main Editorial Commission in close creative collaboration with the leading scientists of the nation, the generals and officers of the General Staff of the USSR Armed Forces, the Main Political Directorate of the Soviet Army and Navy, the main staffs of the Armed Services, the central directorates of the Ministry of Defense and the military institutions of learning. Participating in the preparation of these

military encyclopedic publications has been a large number of specialists in various areas of knowledge, including on sociopolitical questions, the problems of the organizational development of the Armed Forces, military art, military history, equipment and armament and military geography. In being a compendium of the most diverse information from all areas of military affairs and military science, the designated works are widely employed in scientific and practical work and are popular with readers.

In concentrating our main efforts on elaborating problems related to the history of the Great Patriotic War and World War II, we have also given attention to other important military events of the past, primarily the history of the Civil War and military intervention in the USSR. The most significant in this area has been the 2-volume work "Grazhdanskaya voyna v SSSR" [The Civil War in the USSR] in which we have widely employed Lenin's military theoretical heritage, the party and government decisions, the achievements of Soviet historiography and new archival documents.

The Institute collective has been and continues to be concerned with investigating the problems of the organizational development and training of the Soviet Armed Forces. One of the most important works here is "Voyennyye organizatsii rossiyskogo proleteriata i opyt yego vooruzhennoy borby 1903-1917 gg." [Military Organizations of the Russian Proletariat and the Experience of Its Armed Struggle of 1903-1917]. Of undoubtedly interest are also the books "KPSS i voyennoye stroitelstvo" [The CPSU and Military Organizational Development] and "Sovetskiye Vooruzhennyye Sily: Iстория stroitelstva" [The Soviet Armed Forces: History of Organizational Development] which have attracted reader attention with their wealth of factual material.

Much has been done in the area of investigating the military theoretical heritage of the founders of Marxism-Leninism. Such works as "Karl Marks i voyennaya istoriya" [Karl Marx and Military History], "Fridrikh Engels i voyennaya istoriya" [Friedrich Engels and Military History], "V.I. Lenin i sovetskaya voyennaya nauka" [V.I. Lenin and Soviet Military Science], "V.I. Lenin i voyennaya istoriya" [V.I. Lenin and Military History] and others help to more profoundly understand the methodology of military history and help to raise the theoretical level of the works being developed and to increase the professional skill of the scientific personnel.

Many works prepared at the Institute are devoted to the establishment and development of Russian and Soviet military theoretical thought and to the campaign record of our people. I will mention just certain of these: "Russkaya voyennaya mysl v XIX v." [Russian Military Thought in the 19th Century], "Istoriya sovetskoy voyennoy mysli. Kratkiy ocherk. 1919--iyun 1941" [History of Soviet Military Thought. A Concise Essay. 1919-June 1941], "Istoriya Severnoy voyny 1700-1721" [The History of the Northern War of 1700-1721], "Gibel napoleonovskoy armii v Rossii" [The Loss of the Napoleonic Army in Russia], "Russko-turetskaya voyna 1877-1878" [The Russo-Turkish War of 1877-1878], "Istoriya russko-japonskoy voyny 1904-1905 gg." [History of the Russo-Japanese War of 1904-1905], "Istoriya pervoy mirovoy voyny 1914-1918" [History of World War I of 1914-1918] (in 2 volumes) and so forth. They all reflect the most important events of Russian military history and are a definite contribution to historical science.

The military history of foreign states is represented by research in which basic attention has been given to the questions of the rise and development of the armies in the socialist states and the strengthening of their combat alliance with the Soviet Armed Forces. A number of works has been devoted to the history of militarism and military art in the armed forces of the capitalist countries. Works have been created on the armed struggle of the African and Asian peoples for liberty and independence.

The Institute's scientists have made a contribution to the fight against bourgeois falsifiers of military history, having prepared a number of works which provide a well-reasoned rebuff to those who distort the military history past. Among these works are "Kritika burzhuaznykh ucherniy o prichinakh i roli voyn v istorii" [A Critique of Bourgeois Teachings on the Reasons and Role of Wars in History], "Kritika osnovnykh kontseptsiy burzhuaznoy istoriografii vtoroy mirovoy voyny" [A Critique of the Main Concepts of Bourgeois Historiography of World War II] and others.

The most valuable works of the Institute have been awarded the USSR State Prize, the Prize imeni M.V. Frunze, diplomas, certificates and prizes of the VDNKh [Exhibit of National Economic Accomplishments], the USSR Academy of Sciences and the All-Union Znaniye [Knowledge] Society.

For services in the area of military history science, the Military History Institute by the Ukase of the Presidium of the USSR Supreme Soviet of 6 May 1983 received the Order of the Red Star.

The successful work of the Institute to a significant degree has been aided by the constant concern of the leadership of the USSR Ministry of Defense, the General Staff of the USSR Armed Forces, the Main Political Directorate of the Soviet Army and Navy, the Presidium of the USSR Academy of Sciences and the History Department of the USSR Academy of Sciences.

[Question] The Institute maintains broad creative ties with the military history institutions of the socialist and other countries. Please tell us about this collaboration.

[Answer] Our Institute is a member of the International Commission on Military History and the International Committee for the History of World War II and participates in the activities of the bilateral commissions of historians from the USSR and the fraternal socialist countries.

We have established particularly close creative contacts with the military history institutions of Bulgaria, Hungary, the GDR, Cuba, Mongolia, Romania, Poland, Czechoslovakia and Yugoslavia. By the joint efforts of Soviet and foreign military historians a number of monographs and documentary collections have been prepared and these have been highly regarded by the reader audience of these countries. These include "Vekovaya druzhba, boyevoye bratstvo" [Eternal Friendship, Combat Fraternity], "Boyevoye sodruzhestvo" [Combat Alliance], "Bratstvo po oruzhiyu" [Fraternity in Arms], "Na vechnyye vremena" [For Time Eternal] concerning Soviet-Bulgarian, Soviet-Mongolian, Soviet-Polish and Soviet-Czechoslovak combat cooperation. With Hungarian military

historians we have prepared the work "Geroi: Geroi Sovetskogo Soyuza v osvoboditelnykh boyakh na territorii Vengrii" [Heroes: Heroes of the Soviet Union in the Liberation Battles on Hungarian Territory]; with Cuban ones "Muzhestvo i bratstvo" [Courage and Fraternity]; with GDR historians a collection of documents "Za antifashistskuyu demokraticeskuyu Germaniyu 1945-1949 gg." [For an Anti-Nazi Democratic Germany of 1945-1949] and the research "Voyenno-blokovaya politika imperializma: Istorya i sovremenność" [The Military Bloc Policy of Imperialism: History and Present Times]. In 1975-1984, military historians from Bulgaria, Hungary, the GDR, Mongolia, Poland, Romania, the USSR and CSSR under the leadership of the International Editorial Board prepared and issued the work "Vtoraya mirovaya voyna: Kratkaya istoriya" [World War II: A Brief History] and this has received the prize of the academies of sciences of the socialist countries awarded for outstanding achievements in the area of Marxist-Leninist social sciences.

At present, another work is being prepared by collective efforts and this is "Prichiny vtoroy mirovoy voyny: Dokumenty i komentarii" [Causes of World War II: Documents and Commentaries] and this will be published by the 50th anniversary of the start of World War II.

It has become a practice to exchange experience between the military history organizations of the socialist countries. Institute scientists participate in the international congresses of historical sciences and give reports and scientific papers at international scientific conferences and colloquiums. Upon invitation from a series of international organizations during the celebrations of the 40th anniversary of the victory over Naziism, our historians gave lectures and reports in many socialist countries as well as in France, Egypt, Cyprus, Syria, Switzerland and Sweden.

The Institute also publishes individual issues of MEZHDUNARONNY VOYENNO-ISTORICHESKIY ZHURNAL [International Military History Journal] which appears in Russian, English, French, German, Spanish and Arabic. The last issue was devoted to the 40th anniversary of the victory of the Soviet people in the Great Patriotic War.

[Question] Please tell us about the creative plans for the Institute and how the military historians are carrying out the decisions of the plans of the 27th CPSU Congress.

[Answer] We have great plans. For example, we are coming close to completing the preparation of the works "Militarizm--ugroza tsivilizatsii" [Militarism -- A Threat to Civilization] and "Politicheskoye soderzhaniye sovremennoy grazhdanskikh voyn" [The Political Content of Modern Civil Wars] and work is underway in writing the works "Voyennoye iskusstvo v lokalnykh voinakh (1946-1986 gg.)" [Military Art in Local Wars (1946-1986)] and "Vooruzhennyye sily SSSR: Istorya i sovremenność" [The U.S. Armed Forces: History and Present Time]. Research will be continued on the history of World War II. In particular, during the current five-year plan we plan to complete the works: "Vtoraya mirovaya voyna: Tsifry i fakty" [World War II: Facts and Figures], "Vtoraya mirovaya voyna: Iсториография" [World War II: Historiography], "Itogi i uroki vtoroy mirovoy voyny v Aziatsko-Tikhookeanskem regione" [Results and Lessons of World War II in the Asian-Pacific Region] and

"Osvoboditel'naya missiya Sovetskoy Armii na Balkanakh v gody vtoroy mirovoy voyny" [The Liberation Mission of the Soviet Army in the Balkans During the Years of World War II].

The time has also come to broaden the historiographic base for research, primarily on the problems of the Great Patriotic War. At present, the Institute's collective together with the archival institutions of the USSR Ministry of Defense has begun to create a 5-volume collection of documents and materials "Sovetskiye Vooruzhennyye Sily v Velikoy Otechestvennoy voyni" [The Soviet Armed Forces in the Great Patriotic War].

A few words about another important work, the preparation of the fundamental 4-volume work "Istoriya voyn i voyennogo iskusstva" [The History of Wars and Military Art]. In it we examine the development of military affairs since antiquity to the present, the influence of socioeconomic, scientific-technical and national factors on the organizational development of the armed forces as well as the general patterns, specific features and traits in the development of military art in wars of the past, particularly in wars of the 20th century.

In speaking about the reform in work related to the decisions of the 27th CPSU Congress, it can definitely be said that historical science, including military history, is in debt to Soviet society. Along with rather completely researched problems there are those which still await a profound and complete elaboration. The scientific collective of the Institute, in recognizing this, is aware of its shortcomings and oversights. We must seek to strengthen the ties of history with modern military theory and combat training of the Soviet Armed Forces. A new generation of Soviet people has grown up, including servicemen, and which did not know the war. For this reason, one of the most important tasks of military historians is to make our contemporaries aware of the military past which has not lost its importance today. Now we need less "descriptiveness" and more conclusions and recommendations. Of course, the form of the historical approach of the scholars to their readers should be more accessible.

[Question] In line with this could you point out works which are designed directly for the command and political personnel of our Armed Forces?

[Answer] Military history, in enriching military science with conclusions and generalizations from the concrete military past, plays an important role in improving the theory and practice of defending our socialist fatherland. I feel that the commanders and political workers can employ our works, drawing from them the most valuable for their practical work. Not everything from the experience of past wars meets modern requirements. But, as was emphasized by the USSR Minister of Defense, MSU S.L. Sokolov, what is now out of date is the very approach to carrying out operational-tactical tasks, the broad creativity which was shown here, the carefulness and painstakingness of working out all preparatory measures with the subordinate commanders and troops, and the ability to teach the troops what is required by a frontline situation considering the specific combat tasks which must be carried out.

Since the beginning of the 1980's, the Institute more and more had been focusing its efforts on generalizing combat experience considering a solution

to the problems of military art which are of pertinent significance today. A number of works has been published reflecting the actions of the Armed Services during the war years, including: "Komandovaniye i shtab VVS Sovetskoy Armii v Velikoy Otechestvennoy voyno 1941-1945 gg." [Command and Staff of the Soviet Army Air Forces in the Great Patriotic War of 1941-1945], "Voyska PVO strany v Velikoy Otechestvennoy voyno" [The National Air Defense Troops in the Great Patriotic War], "Tyl Sovetskikh Vooruzhennykh SII v Velikoy Otechestvennoy voyno. 1941-1945 gg." [Rear Services of the Soviet Armed Forces in the Great Patriotic War. 1941-1945] and others. Research on the operations of front field forces and fleets has held an important place.

Soon a series of other works will be published which generalize the experience of preparing and conducting front offensive operations, which examine the problem of surprise in the operations of the Great Patriotic War, which show the development of weapons and military equipment, the combat training of the Soviet Ground Troops, which examine the problem of strategic regroupings from the experience of the Great Patriotic War and so forth.

The Institute's plans include also the works "Opyt boyevykh deystviy: Vospominaniya uchastnikov Velikoy Otechestvennoy voyny" [Combat Experience: Memoirs of Participants of the Great Patriotic War], "Metody raboty komandirov i shtabov pri podgotovke i vedenii boyevykh deystviy (po optyu Velikoy Otechestvennoy voyny)" [Work Methods of Commanders and Staffs in Preparing and Conducting Operations (From the Experience of the Great Patriotic War)] and the monographs "Istoricheskiy optyt politicheskogo vospitaniya lichnogo sostava Krasnoy Armii i Flota v usloviyakh vozrastaniya mesopredstvennoy ugraazy voyny (1929-1941 gg.)" [Historical Experience of Political Indoctrination of the Personnel of the Red Army and Navy Under the Conditions of the Increasing Directorate of War (1929-1941)] and "Obshchyevoyskovoy boy: Rabota komandira i shtaba divizii po optyu Velikoy Otechestvennoy voyny" [Combined-Arms Combat: The Work of the Divisional Commander and Staff From the Experience of the Great Patriotic War].

Also useful will be the 2-volume biographic publication "Geroi Sovetskogo Soyuza" [Heroes of the Soviet Union] which is being prepared jointly with the Main Personnel Directorate of the Ministry of Defense and the military museums.

In a word, there is much to be done. The collective of the Military History Institute of the USSR Ministry of Defense will endeavor to honorably carry out the tasks stemming from the decisions of the 27th CPSU Congress and make a worthy contribution to the development of Soviet military and military history science, to strengthening the nation's defense capability and the combat might of the Soviet Armed Forces as well as the military-patriotic indoctrination of the workers.

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POSTWAR DEVELOPMENT OF ANTITANK WEAPONS IN CAPITALIST ARMIES

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[Article by Col N.F. Fomich published under the rubric "In Foreign Armies"; the article was written from materials in the foreign press]

[Text] In World War II, the basic weapon for combating tanks was field artillery, primarily antitank. However, the infantry also had antitank weapons including the Molotov cocktail, antitank rifles and grenades. By the war's end, the troops had received new close-combat weapons including uncontrolled rocket antitank weapons of the Faustpatron type (Germany), the Bazooka (United States) and Piat (England) with an effective firing range of 30-100 m against tanks.

After the war, the arsenal of antitank weapons was significantly expanded and the quality changed. This was explained primarily by the fact that up to then tanks had been the main strike force of the ground troops. In the mid-1950s, the armies of many countries began employing guided antitank missiles (PTUR) against them. Subsequently, due to such qualities as long firing range (up to 4 km), the high probability of hitting the target (0.7-0.8), significant armor piercing capability (500-600 mm) and comparatively low weight and size (see the Table), these became the leading type of weapons for combating tanks. These missiles are a rather mass weapon in the armies of the capitalist states.

The PTUR are the chief element of the antitank missile systems (PIRK) which also include the launcher, the sight and control equipment. Such systems in the armies of a number of the NATO countries have replaced the recoilless weapons and antitank cannons. Basically these are the PIRK of the so-called second generation which have a semiautomatic guidance system (the operator merely follows the target, keeping it on the sight crosshairs; the missile is guided by commands automatically generated from the control equipment and transmitted over wires to the missile). The first generation models with a manual control system required the simultaneous tracking of the target and the missile as well as the manipulating of the control lever for adjusting the flight trajectory of the PTUR up to the moment of its impact with the armored object. This significantly complicated the operator's work and reduced the

Name of model (developer nation, year of introduction)	launch wt., kp/ warhead wt., kg	missile dimen- sions: mm length/diam.	speed of flight, m/s	maximum firing range, m	armor pene- tration, mm	control system
First-generation PTUR						
SS-11 (France, 1958)	29.9 6	1200 164	190	3000	600	manual by wire
Entac (France, 1960)	12 5	820 150	85	2000	500	"
Cobra (FRG, 1962)	10.3 2.7	950 100	85	2000	500	•
Vigilant (GB, 1962)	14 6	985 115	157	4000	500	•
KAM-3 (Japan, 1964)	15.7 1.5	1000 120	85	1800	500	•
SS-12 (France, 1965)	75 18	1567 170	230	6000	550	•
Swingfire (GB, 1969)	26 7	1060 170	185	4000	500	•
Second-generation PTUR						
TOW (USA, 1968)	17 3.6	1285 221	210	3750	500	semi- auto., wire
Dracon (USA, 1968)	6.12 2.5	744 122	110	1000	430	"
Milan (FRG, Fr., 1972)	6.6 2.9	755 116	200	2000	550	•
HOT (FRG, France, 1976)	23.5 6	1275 136	260	4000	700	•
KAM-9 (Japan, 1979)	— —	1565 152	200	4000	550	•
Third-generation PTUR						
Hellfire (USA, 1983)	43 9	1760 180	—	6000	700	(1

Antitank Guided Missiles

Key: 1--With laser semiactive seeker

probability of hitting the target, particularly with its rapid maneuvering on the battlefield.

At present, the most advanced of the PIRK of those in use in foreign armies are considered to be the American TOW system and the French-West German Milan and HOT with a maximum firing range of, respectively, 3,750, 2,000 and 4,000 m. The shaped-charge warheads of their missiles are capable of piercing armor up to 500-600 mm thick. According to announcements in the foreign press, of the 10,500 launches (100 percent) of the TOW missiles made up to 1979, around 83 percent hit the target.(1) Foreign specialists emphasize here that the firing was basically under ideal conditions. Yet in a combat situation, the results, in their opinion, will be significantly less.

The antitank missile systems in use in the armies of the capitalist countries were developed chiefly in models which were portable or could be broken down and transported. In recent years there has been a tendency to use the PIRK in a version of self-propelled antitank missile units manufactured on a tracked chassis. Due to this, as foreign military specialists feel, the mobility of the designated weapons is significantly increased while the armored housing which protects the crew makes it possible to employ them closer to the forward edge. Similar models already are found in the ground forces of the United States, FRG, Great Britain, France, Spain and Sweden.

The helicopter is considered to be an effective carrier of PIUR. It can quickly maneuver over the battlefield, employ the protective and camouflaging properties of the terrain, rise over obstacles and thereby sooner detect and hit armored objects at long ranges than can be done by ground PIRK. While in the 1960s, light multipurpose helicopters were basically armed with antitank missiles, subsequently, in studying the experience of their combat employment in local wars and the results of troop exercises employing these weapons in the leading NATO countries, they began developing specialized helicopters designed primarily for combating tanks (for this reason they are frequently called antitank helicopters).

These are qualitatively new aircraft which have high flight performance, powerful main weapons, armored protection for the cockpit and the most important assemblies. They are equipped with modern electronic devices making it possible to operate around-the clock under bad weather conditions. The most advanced of these, in the opinion of foreign specialists, is the American combat helicopter AH-64A Apache which has already been delivered to the subunits of the U.S. Army Aviation. It can carry up to 16 Hellfire PIUR with a semiactive laser seeker. The combining of such weapons with modern means for detecting the targets, a stabilized sight, a fire control computer, a laser rangefinder-target indicator and a television sight should ensure the effective hitting of tanks at ranges up to 6 km under any meteorological conditions, during the day and at night. The U.S. Army Command intends to purchase 675 such helicopters in order to use them along with the combat helicopters AH-1 Hugh Cobra (a total for the Army Aviation of around 1,000 units each of which can carry up to eight TOW PIUR). The foreign press has emphasized that the AH-64A Apache helicopters, capable of operating independently, will probably be employed together with the reconnaissance

helicopters OH-58D Kiowa, obtaining from them the necessary data on the location of armored objects for their subsequent hitting.

Combat helicopters have also been developed in other NATO countries. For example, in the Army Aviation of the FRG Ground Forces there are over 300 BO-105P helicopters armed with the HOT PIUR (firing range up to 4 km). In Great Britain the Lynx helicopters are being reequipped for use as antitank weapons (each can carry eight TOW or HOT PIUR). The French Army Aviation is armed with the combat helicopters SA-342M Gazelle with the HOT PIUR. In Italy, since 1975, they have been producing the multipurpose helicopter A.109A Hirundo which, in carrying TOW PIUR, can be employed for combating tanks.

According to information in the foreign press, at present the Western European countries are at work on developing future combat helicopters employing modern technology. It is assumed that their main regulation weapon will be third-generation PIUR. In particular, a model is being developed in two variations presently by France and the FRG according to the joint PAH-2 program.

In line with the significantly increased level of armored protection on new and future tanks, the NATO countries are at work improving the existing PIUR and developing systems of the next (third) generation. Here the main efforts have been directed at increasing armor penetration and ensuring the possibility of firing under nighttime conditions. For this purpose for the PIUR TOW-2, HOT-2 and Milan-2 they have developed more powerful shaped-charge warheads and the systems themselves have begun to be equipped with television sights.

At present, the United States and the main Western European countries are developing third-generation antitank missiles(2) and these would not be "tethered" by a wire to the launcher but have an autonomous guidance system. In a word, it is a question of realizing the "fire and forget" principle, as it is called in the foreign press, when the task of the operator is merely to choose the target and launch the PIUR in its direction with the missile then approaching and hitting the armored target using its in-flight homing head. The operator can shift fire to another target or quickly change the firing position and as a whole this increases the combat capabilities and survivability of the PIUR.

American specialists are working out a self-propelled antitank system the range of fire of which reaches 10 km and the connection between the launcher and the missile is over a fiber-optical cable. It has been pointed out that the PIUR will be launched vertically (the launcher is in a shelter) and will then fly along a high trajectory. With the aid of an on-board TV camera, the terrain ahead of the flying missile will be displayed on the screen of the operator's control panel and he, with the appearance of the armored object, will guide the PIUR to it, striking the tank from above. In the opinion of foreign experts, the fiber-optic cables can be employed in helicopter antitank systems.

Foreign specialists are also seeking out other ways for increasing the effectiveness of the PIUR. For example, they have developed a fundamentally new design of the missile warhead for a new Swedish system called Bill and

which fires at a range up to 2,000 m. The axis of the missile-shaped charge is slanted downward at an angle of 30 degrees to its longitudinal axis and this significantly increases the possibility of piercing any tank armor. In addition, the missile in flying about 1 m above the sight line of the sight, can hit the armored targets from above, including tanks which are in shelters.

They are also continuing to develop the most mass weapon for close combat of tanks, the hand-held antitank grenade launchers (RPG). This is a relatively simple weapon consisting of a launching tube, a HEAT grenade with a shaped-charge warhead and a sighting device. Modern RPG have an effective range of fire against tanks of 300-500 m and armor penetration up to 400 mm. At the beginning of the 1980s, new models of RPG were developed in Great Britain, the FRG, France, Italy, Spain, Sweden and Israel. The Israeli Picket grenade launcher is marked by rather high accuracy of fire achieved by equipping the HEAT rocket with an inertial system which holds it on the sight line during the flight to the target. Production of the American Viper RPG, judging from announcements in the Western press, has been halted due to insufficient effectiveness. The U.S. Army Command has taken a decision to purchase the Swedish 84-mm AT-4 grenade launcher for the ground troops. As a total over the 5 years they plan to deliver over 360,000 units.

There has also been further development for another traditional antitank weapon, mines. According to announcements in the foreign press, during World War II, around 20 percent of the American and English tanks were knocked out by mines and during the period of the U.S. war in Korea, the overall tank losses from mines were almost 70 percent.(3) Their role in combating tanks, after the appearance of new weapons and methods of mining, has increased further. The remote mining systems are particularly promising as they make it possible to set mine obstacles in a maximum short time and this is particularly important in conducting modern maneuvering and often high-speed combat. Foreign military experts feel that the employed systems (artillery, missile and aviation) provide an opportunity to set mines directly ahead of moving tanks or directly in the infantry troop battle formations, thereby hindering their actions and creating conditions for the effective hitting of tanks by other weapons. Such a method can be employed not only on the defensive but also on the offensive. However, the remote mining system in no way excludes the setting of mines using other means, for example, by towed minelayers or by hand.

The recent technical and technological achievements have been employed in developing antitank mines. A comparatively new type is the side-piercing mine designed as a weapon to strengthen and supplement other types of mines. Their employment is considered advisable for creating barriers on roads, in defiles and on streets (in fighting in population points) as well as for covering passages through various obstacles. The side-piercing mines (including those based upon the principle of a shaped-charge percussion core) come with a powerful directional charge which can hit armored targets at a distance up to 50 m. Such mines have been developed in the United States, Great Britain, the FRG and France.

In solving the questions of combating tanks, recently there has been a noticeably greater role assigned to field artillery, particularly after the

appearance of qualitatively new ammunition, including the guided and cluster shells. The first such model was the American 155-mm guided shell Copperhead which was put into series production in 1980. This is equipped with a semiactive laser seeker. The range of fire from a regulation howitzer is up to 16 km. The shell is guided on the terminal leg of the flight trajectory. Foreign specialists have noted the high probability of its hitting the target. Thus, in conducting range test firing in 1984 under conditions close to actual combat, 9 of the 23 moving armored targets were hit by these guided projectiles.(4) At the same time, in their opinion, the necessity of illuminating the target with a laser beam before the moment of the impacting of the Cooperhead projectiles on them can significantly reduce the effectiveness of the latter under combat conditions, when the battlefield is very smokey as well as under bad weather conditions (fog, rain, snow). The rather high cost of such a projectile has also been pointed out (\$45,000). Considering the elimination of the designated shortcomings in the projectile, they are presently developing abroad high-precision homing ammunition which meets the above-mentioned principle of "fire and forget." An example would be the 203.2-mm antitank cluster shell SM 836 SADARM (the translation of the abbreviation from English means: sense and destroy armor) developed in the United States. In approaching the target area, three warheads are released from it and these then drop by parachute. The longitudinal axis of their housings is deflected 30 degrees from the vertical. Such a position of the warhead in space and its simultaneous rotations (4 turns a second) give the radiometric system a circular scanning (spiral) for the area of terrain where the tanks are located. After locking on the target, the on-board microprocessor determines the position of the target's center and calculates the optimum time for detonating the charge (at a height of several-score meters) and which operates according to the principle of a shaped-charge percussion core and hits the tank from above. American specialists are also examining the question of developing analogous ammunition of 155-mm caliber. The foreign press has pointed out that projectiles of the SADARM type are also being developed in the FRG and France. The West German firm Rheinmetall, in addition to this, is conducting research for developing a high-precision 155-mm projectile which homes on the terminal leg of the trajectory. It is to be armed with a homing head (possibly, infrared), a powerful shaped-charge warhead and missile microboosters which are activated after locking on the target and which increase the velocity of the projectile as this is low due to the use of a parachute descent.

Also in the development stage is the American 203.2 mm rocket-assisted projectile (length 1.8 m, weight 105 kg) with an increased range of fire (up to 70 km). It will be armed with one of two homing heads: infrared or radar. Possibly the projectile will be equipped with a cluster warhead with homing contact elements.

Cluster shells designed to hit armored targets have been developed in the United States and FRG. The American M483 (155-mm) and M509 (203.2-mm) shells contain, respectively, 88 and 180 shaped charge-fragmentation elements each of which pierces armor up to 70 mm thick. In their exploding a large amount of fragments is formed and these hit the unprotected personnel. The foreign press has pointed out that the West German model of the shell with a caliber of 155 mm (63 shaped charge-fragmentation elements) has a great range of fire

and its effect against the target, in comparison with the M483 shell, is greater.

A new area in antitank warfare has been the development of guided mortar shells with a caliber of 81-120 mm and fired from regular mortars to a range of 6-8 km. Prototypes of such ammunition have already been developed in the United States, FRG, Great Britain and Sweden. These are armed with different homing heads (infrared, laser semiactive and radar). In having a high flight trajectory, the guided mortar shells will strike the tank from above.

In solving the questions of combating tanks, in recent years there has been a noticeably greater role for such equipment as the multiple launch rocket system (RSZO), particularly after the development of cluster warheads for their unguided missiles. Such systems are designed chiefly to launch attacks against aerial targets, including against tank accumulations. The most advanced is considered to be the American MLRS which is becoming the standard system in the armies of the main NATO countries.

The launcher (12 tubes) is mounted on a tracked chassis. The unguided missiles with a caliber of 240 mm will have three types of cluster warheads. American specialists have already developed a warhead which contains 644 shaped-charge and fragmentation elements. With a multiple launch from the unit (at a range of over 30 km), 7,728 such elements scatter over an area of around 25,000 square m, hitting armored equipment and personnel. The second type of warhead developed in West Germany will contain 28 antitank AT-2 bottom-piercing mines. Here the range of fire will be 40 km. It has been pointed out that the shaped charge of the AT-2 mine is capable of piercing armor up to 140 mm thick. A single multiple launch in the target area delivers 336 mines which are scattered over an area of 1,000 x 400 m. At present, American and Western European specialists are developing a cluster warhead with six shaped-charge contact elements equipped with infrared seekers on the terminal leg of the trajectory.

In 1983, the first two MLRS batteries (with 9 launchers in each) were delivered to the 1st and 8th Infantry Divisions of the U.S. Army. As a total, they plan to deliver to the American ground forces 276 launchers and around 400,000 rockets. In accord with a concluded agreement, West Germany will receive 200 launchers and 85,000 unguided rockets, Great Britain will receive, respectively, 68 and 50,000, France 55 and 32,000 and Italy 20 and 6,000.

In addition to the United States, multiple launch rocket systems have been developed in the FRG, Italy, Spain, Israel, Japan and Brazil. However, in terms of their lethality they are significantly inferior to the American one.

Aviation equipment for combating tanks, along with an improvement in the carriers themselves, has been developing in the direction of precision-guidance ammunition. Thus, in the NATO countries the Maverick American guided missile has become widespread; this has a television guidance system and a range of fire of up to 20 km. It is equipped with a shaped-charge warhead.

In recent years, cannister weapons have appeared and these are suspended cannisters with a large number of antitank weapons including guided missiles,

homing mines or small-caliber bombs which hit armored targets with a shaped-charge percussion core. For example, in the United States within the WAA! Program, they have developed the Wasp guided missile and the SUU-65 cannister equipped with homing antitank ammunition and mines. The Wasp missiles, in being equipped with a millimeter-band homing head, are launched from a cannister-type launcher at a range of up to 12 km. An analogous aviation antitank guided missile has also been developed in the FRG, Great Britain, France and Israel. In particular, the FRG has developed for the Tornado and Phantom aircraft an undropped cannister armed with small-caliber shaped-charge bombs and antitank mines. The American Rockeye cluster bomb (247 small-caliber shaped-charge bombs) and the English BL755 (147 units) are considered to be an effective antitank weapon.

From 1978 through 1982, under the Assault Breaker Program, the United States conducted research in the aim of determining the practical possibility of developing a reconnaissance-strike system (RUK) as well as developed the equipment and weapons. The system is designed to attack group targets, primarily tanks in the second echelon. The experimental RUK included: a reconnaissance and guidance aircraft (with side-viewing radar), a ground mobile command center and surface-to-surface and air-to-surface guided missiles.

In the opinion of American experts, the results of the research and the testing of the individual components in the system confirmed the practical possibility of developing it. For this reason, work in the given area conducted jointly by the U.S. Army and Air Force is continuing. The Air Force is responsible for developing the aircraft side-viewing radar with the systems for processing and displaying the intelligence information and the aviation equipment for hitting the detected targets, while specialists from the ground forces are developing a mobile missile launcher and the controls. As has been announced in the foreign press, as the weapon in the future RUK, the U.S. Army Command is planning to employ guided missiles (possibly, an advanced version of the Lance guided missile with a range of fire of 70-100 km) with cluster warheads and carried on a modified MLRS launcher; the Air Force will use cruise missiles (a range of fire of 370-550 km) also with cluster warheads. Here it has been pointed out that the warheads of both types of missiles will be provided with a large number of homing ammunition (TGSM and Skeet), the charges of which operate according to the principle of a shaped-charge percussion core and hit the tank from above. In the opinion of American military specialists, the future RUK should become a weapon in the American corps. It will be designed chiefly for fire damage to the tank groupings in the enemy second echelons.

In combating tanks an important place is also given to tactical nuclear weapons, and primarily neutron weapons (with an increased yield of initial radiation). From a graph shown in the magazine INTERNATIONAL DEFENSE REVIEW, it follows that, for example, at a distance of 1,000 m from the explosion epicenter of a neutron device with a power of 1 kiloton, the radiation dose will be several thousand rad. Such power can be found in the neutron warheads of the 203.2-mm projectile and the Lance guided missile which are presently produced in the United States. These complement the already enormous nuclear arsenal of the Pentagon in Western Europe.

Thus, in the armies of the aggressive NATO bloc there is a whole range of diverse antitank weapons by which it is possible to hit tanks virtually over the entire range. It must be said that they are not only being stockpiled in quantitative terms but, most importantly, they are being improved qualitatively by employing modern technology. At the beginning of the 1980s, there was a clear desire of the main NATO countries, particularly the United States, to create high-precision antitank ammunition meeting the requirements of the "fire and hit" concept. Although here the leadership has been seized by the United States, its Western European partners are endeavoring not to fall behind in this next arms race, participating in the development of the most modern systems. Each year colossal amounts of money and materiel are spent on achieving the designated aims, but this does not stop the NATO bosses who are blinded by the illusory idea of gaining supremacy over the USSR and its allies in the given area.

One other important aspect. In widely publicizing the measures being carried out to improve and develop new models of antitank weapons, the Western press, in hiding behind the notorious myth of the "tank threat from the east" and forgetting to mention the tens of thousands of their own tanks, focus attention of their readers on the supposed forced, defensive nature of the work being carried out. However, neither the command of the NATO bloc itself or its experts conceal the fact that these weapons can be just as actively and effectively employed in conducting offensive operations. All the more as this fully conforms to the requirements of the new clearly aggressive American concept of "airland operation (engagement)" which, in particular, presupposes the availability of high-precision weapons designed for countering tanks which are a significant distance away from the forward edge.

All of this demands from the Soviet Armed Forces increased vigilance and the maintaining of combat readiness on the highest level.

FOOTNOTES

1. DEFENSE, December 1979, p 931.
2. ZARUZHENNOYE VOYENNOYE OBOZRENIYE, No 3, 1985, pp 29-34.
3. NATO'S SIXTEEN NATIONS, September-October 1984, p 75.
4. DEFENSE ATTACHE, No 2, 1985, p 3.

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COMBAT TRAINING OF 15TH, 222D RIFLE DIVISIONS FROM EXPERIENCE OF GREAT PATRIOTIC WAR

Moscow VOYENNO-ISTORICHESKIY ZHURNAL in Russian No 11, 1986 (signed to press 27 Oct 86) pp 77-80

[Article by Lt Col B.Ye. Pestov, published under the rubric "Scientific Papers and Information"]

[Text] The constant development in the Great Patriotic War of the methods of combat and the significant replacement of army personnel by inductee contingents demanded a continuous improvement in the combat training of the troops. For this reason, over the entire war, intense combat training was carried out both for the soldiers, commanders and staff officers as well as for entire subunits, units and formations. In exercises, drills, field firings, assemblies and training, the men studied the weapons and combat equipment and their actions in combat while the subunits, units and formations worked out the methods for executing the battle missions. Combat training was based upon the requirements of the regulations, manuals, instructions, guides, orders and directives of the command while its content, forms and methods were determined by the training plans and programs.

Combat training was carried out most intensely during a period of the stabilizing of the front line or during a lull. The slightest interruptions in fighting were also employed. As was pointed out by MSU K.A. Meretskov, "The bitter experience gained...in November 1941 taught us a great deal. Even then we had made it a rule: No matter how great our need for troops, the incoming recruits and the newly arrived units before battle would undergo instruction in the training centers or directly in the formations in order to become acquainted with the particular features of combat...."(1)

The combat training exercises conducted in a frontline situation were marked by effectiveness and concreteness. Training was brought as close as possible to the conditions under which the troops would carry out the battle mission.

In using archival documents, let us examine certain questions of combat training in the 15th Rifle Division which was on the defensive in the first echelon of the XVIII Rifle Corps of the 65th Army and in the 222d Rifle Division which was part of the LXII Rifle Corps of the 33d Army in the reserve of Headquarters Supreme High Command [RVGK].

In November-December 1944, the XVIII Rifle Corps of the 16th Army was defending a bridgehead on the western bank of the Narew River. In the order of 26 November, the corps commander, Maj Gen I.I. Ivanov, set the task of organizing and conducting combat training in its formations and units. (2) The corps staff worked out program plans for the training of the troops. These documents specifically determined what must be studied by the units and formations which were in the first and second echelon as well as by the staffs.

The 15th Rifle Division (commander, Maj Gen K.Ye. Grebennik) occupied the defenses in the first echelon of the corps on a line of elev. 105.8, Kukhary, Karnevek, Gzovo. On the basis of the corps order and combat training plan, in the division they worked out an order, plan and program of training. The program was designed for one month of instruction encompassing the various forms of training for all the subunits, units and staffs. The exercises were to commence on 1 December 1944 (the order of the division's commander to organize and conduct combat training of 28 November 1944). (3) A particular feature of the plan was the differentiated approach in determining the training tasks for the first and second echelon units.

The main training task for the first-echelon units was to study the experience of the defensive battles and the factors which ensured stability of the defense. Particular attention was paid to working out the questions of repelling an offensive by superior enemy forces and causing it significant damage by striking the main enemy grouping with artillery and mortar fire, antitank weapons and tanks as well as small arms both during the moving up for the offensive as well as ahead of the forward defensive edge. Important significance was given to weapons training. The commanders had the task of training at least 5 snipers and 10 excellent shots in each company. In other words, the training was aimed at the better execution of the combat tasks confronting the units and subunits in the existing situation.

The main training task for the second-echelon units and subunits was to study the methods for preventing the spread of the enemy deep in the defenses and the questions of organizing and conducting counterattacks, offensive combat against a strongly fortified enemy defense with the crossing of water obstacles, an offensive in a wooded-swampy area both during the day and at night as well as fighting for major population points. Here particular attention was given to training the company and battalion in organizing the offensive and concentrating the subunits on the start-line, making passages through obstacles, executing the assault rush with the firing of all types of weapons on the move and the simultaneous throwing of grenades in the enemy trenches and fighting in the trenches. On the company-battalion level, the second-echelon units had to work out the questions of organizing and maintaining cooperation with the attached and supporting forces as well as with adjacent units, particularly in repelling enemy tank and infantry counterattacks, digging in on the captured lines and committing reserves to combat.

Command-staff exercises were planned for the regiment and battalion staffs. In the training of staff officers great importance was given to efficient

collection, processing and reporting of accurate situational data, to the quality of elaborating combat documents and to concealed troop control.

The order of Maj Gen K.Ye. Grebennik was the basis for the combat training on the regiment-battalion level. The duration of the exercises which were to be carried out in any weather was set at 10 hours a day with 30 percent designated for nighttime. (4)

Training for the offensive was the main specific aim for the reinforcements which had arrived to bring the third battalions of the rifle regiments up to strength. In improving the individual training of the men, the task was set of training them to act as part of a squad and platoon and to master their weapons, particularly in firing on the move. The training day lasted 10 hours and in addition 2 hours were assigned for further work on poorly mastered questions.

In the training of this category of soldier, special attention was paid to specialist training. The division's commander for the period of the exercises ordered that the young soldiers be split up by special groups (subunits). Here it was required that each regiment over the 15 days would train: 66 medium machine gunners, 66 light machine gunners, 17 mortar troops for the 82-mm mortars and 8 for the 120-mm mortars, a combat engineer squad for each rifle regiment, two or three combat engineers for a machine gun or mortar platoon and an artillery battery. (5)

By the start of the exercises the regimental staffs had completed the elaboration of the plans while schedules for the first 10 days of the month had been drawn up in the rifle battalions and companies and the exercise leaders had prepared outlines.

All categories of servicemen were encompassed by the combat training. For the commanders of the units and subunits and the staffs there were command-staff drills, instructor-procedural exercises, demonstration exercises and assemblies. The officers were given the experience of the previous battles and procedural skills were instilled for training subordinates and for organizing and commanding battle. Three groups were set up: the commanders of battalions, companies and platoons. By 17 December, ten exercises had been held, including one with battalion commanders on the subject "Defensive Battle of a Rifle Battalion Under the Conditions of a Rigid Defense" conducted by the division commander. The regimental commanders held five exercises with the company commanders and the battalion commanders held four with platoon commanders on the subjects: "Defensive Combat of a Rifle Company (Platoon) Under Conditions of a Rigid Defense," "Organization and Conduct of Fire in Repelling Enemy Tank and Infantry Assault Ahead of the Forward Edge and Combat for the Forward Edge," "Assault by a Rifle Company (Platoon) on a Strongpoint in the System of the Enemy Positional Defenses," "Orientation in the Field Using a Map and Without a Map, Reading a Map," and "An Assault by a Rifle Platoon on an Enemy Firing Point." In addition, with the division's officers they analyzed the previous fighting to capture and hold the bridgehead on the western bank of the Narew River. All these exercises were preceded by careful preparation of the training facilities. The leaders were also prepared for them.

The rank-and-file and NCO personnel of the first-echelon units was involved in combat and political training, combining studies with engineer work of strengthening the defensive line and standing duty for direct security of the battle orders. The following subjects were worked out for tactics: "The Observer Soldier," "A Soldier on Patrol Duty," "The Listening Post," "Repelling an Enemy Assault and Combat Beyond the Forward Edge as Part of a Platoon," "The Squad on Combat Security." The questions of combat support for the subunits on the defensive, in being worked out in theoretical exercises, were practically studied by the personnel of the rifle companies. Thus, each day in the aim of preventing an enemy surprise attack, ambushes and listening posts were set out in the neutral zone a distance of 30-60 m from our first trench.

Weapons training, particularly for the machine gunners, was carried out with the obligatory fulfillment of firing exercises and developing the skills of eliminating malfunctions. The personnel was trained to fire with any visibility and by lines. Here firing in the first-echelon subunits was carried out directly on the forward edge. The methods of volley fire were worked out by the squad and platoon. The weapons training exercises were carried out as part of the tactical training on the subject "Repelling Enemy Infantry and Tank Assaults Ahead of the Forward Edge." In addition, in the division's units there were assemblies for machine gunners (24 hours), snipers (62 hours), combat engineers (20 hours) and radio operators (20 hours).

The reinforcements for the third battalions of the regiments were trained in a special program at the formation's training center in the Vilgalyas area.

Officers from the divisional staff and the staffs of the regiments and battalions during the combat training improved their professional skill. In the course of the training they improved their skills of collecting, studying and processing the situational data, the planning of combat, the elaboration of combat documents, the submitting of the most complete data to their commanders for decision taking, and the issuing of tasks to subordinate units and subunits. With the divisional staff officers the following subjects were worked out: "Grouping and Characteristics of the Defending Enemy," "Radio Reconnaissance and Radio Operating Rules" and with the regimental and battalion staffs "The Defense of the Regiment and Battalion, the Drawing Up and Working Out of Operational Documents," "Defensive Combat of a Regiment, Battalion Under Conditions of a Rigid Defense" and "Offensive of a Rifle Regiment Against Heavily Strengthened Enemy Defenses." In all the exercises combat documents were worked out and equipment was employed.

The divisional staff regularly inspected the state and quality of combat training in the units and subunits. Supervision by the staff was carried out by officers from the operations department, the political section, the chief of the chemical warfare service and reserve officers. Subunit commanders on the spot were given recommendations to eliminate shortcomings disclosed by the inspection.

The 222d Rifle Division of the LXII Rifle Corps, in being withdrawn to the RVGK, by 13 September 1944, was concentrated in the area of Olimpie, Palmyra,

Yasenevka, Gornovo (60 km to the south of Belostok). (6) It was to participate in breaching the enemy's deliberate and deeply echeloned defenses.

On 13 September, the division's commander, Col G.P. Savchuk, issued orders to organize combat training in the units during the period from 15 through 30 September. The orders outlined the training tasks for all serviceman categories. (7)

Over the period of 15 days, the officers were to strengthen their skills in the precise command of the units and subunits as well as in the organizing and maintaining of cooperation on the offensive. In the training of the rank-and-file and NCO personnel, chief attention was to be given to mastering the methods of offensive combat in cooperation with the artillery and tanks as well as moving behind a rolling barrage. Great importance was paid to working out the questions of storming heavily fortified positions, digging in on captured lines and repelling enemy infantry and tank counterattacks.

The task was set of shaping up the staffs and strengthening their skills in continuous command of the troops in combat. Exercises with the staff officers were planned daily for 2 hours.

The assemblies in all the division's units were to be conducted over 4 days for the mortar and machine gun troops; 5 days for the crews of the antitank guns; 8 days for scouts; 5 days with the company mining experts; 9 days with the snipers; 4 days with the observers, liaisons and messengers. (8)

The training of soldiers assigned to sergeant positions was to be carried out at 3-5-day assemblies in the regiments. In organizing the combat training, great importance was given to carrying out the day's schedule, to the attendance of the exercises as well as to the questions of organizing security of the positions and increasing vigilance. The division's commander demanded that from the first day of the stay in the concentration area, the units precisely carry out the day's schedule and each day hold physical exercises, the morning inspection and evening inspection. All the personnel of the subunits (with the exception of persons on daily detail) should be present at the exercises. The command of the units and subunits was entrusted with the task of organizing the security of the positions and carrying out work among the servicemen to increase vigilance.

The division's staff worked out a calendar plan for the combat training of the units and planning of the exercises.

Immediately with the start of training, exercises with the squads on tactical training were conducted in all the formation's units. The subject "Offensive and Assault of a Rifle Squad" was studied. Then the questions of offensive combat were worked out with all the platoon's, companies and battalions. Here attention was paid to the actions of the personnel under special conditions. In particular, with the platoons of the rifle companies they held exercises on the subject "Actions of an Assault Group in Storming and Sealing Off Permanent Emplacements" and with the rifle companies on the subjects: "Offensive of a Reinforced Rifle Company in the Forest" and "Offensive of a Reinforced Rifle

Company With the Crossing of a Water Obstacle." Characteristically, 20 percent of the tactical exercises was conducted with field firing.(9)

Some 10 hours were spent on the tactical training of the squads, 33 hours for the platoons, 53 hours for the companies and 20 hours for the battalions.(10)

Proper attention was paid to political, weapons and battle drill training. Thus, the personnel took political training for 12 hours, the study of weapons equipment was 36 hours, practice firing and throwing of hand grenades was 107 hours, and the battle drill training 36 hours.(11)

Prior to working through new subjects with the personnel, 3-4-hour instructor-procedural exercises were conducted with the officers leading the exercises and with the NCO personnel, such exercises were held daily, only for 2 hours.

It must be emphasized that no weaknesses were permitted in the combat training. The units and subunits learned what they would have to do in combat. The division prepared training fields similar to the enemy defenses which had to be breached and all exercises were conducted on them. The exercises for the companies, battalions and regiments were carried out, as a rule, using reinforcements and field firing. The personnel constantly learned to advance boldly both during the day and at night.

The result of the carefully planned and effectively conducted combat training in the units of the 15th and 222d Rifle Divisions was their successful combat as part of the XVIII and LXII Rifle Corps in the Malawa-Elbe (1945) and Warsaw-Poznan (1945) Offensive Operations.

FOOTNOTES

1. K.A. Meretskov, "Na sluzhbe narodu" [In Service of the People], Moscow, Politizdat, 2d Edition, 1971, p 237.
2. TsAMO SSSR [Central Archives of the USSR Ministry of Defense], folio 18 sk, inv. 54666, file 2.
3. "Sbornik boyevykh dokumentov Velikoy Otechestvennoy voyny" [Collection of Combat Documents of the Great Patriotic War], Moscow, Voenizdat, No 14, 1951, p 28.
4. TsAMO, folio 18 sk, inv. 44287, file 6; inv. 54666, file 7.
5. Ibid.
6. Ibid., folio 1494, inv. 1, file 44, sheet 41.
7. Ibid., file 34, sheet 61.
8. Ibid.
9. Ibid., file 51, sheets 10-11.

10. Ibid., folio 62 sk, inv. 71356, file 1, sheets 524-528.

11. Ibid.

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BASIC STAGES IN ORGANIZATIONAL DEVELOPMENT OF INTERIOR TROOPS

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[Article by Doctor of Historical Sciences, Maj Gen V.F. Nekrasov]

[Text] One of the component parts of the Soviet Armed Forces is the interior security troops. The specific nature of these troops has determined a whole series of features inherent to them as well as trends in their development and an examination of this is of undoubted interest. The possibility of establishing such troops was genially foreseen by K. Marx and F. Engels. In the work "Possibilities and Prospects of the War of the Holy Alliance Against France in 1852," F. Engels pointed to the necessity of assigning special combat troops for protecting revolutionary order and in the event of the starting of a civil war, for disarming and neutralizing the revolting bourgeoisie. "Armed forces," he wrote, "consist primarily of two components: 1) the proletarian guard in the cities and the peasant guard in rural localities to the degree that the latter are dependable for standing interior service and 2) a regular army against invasion."(1)

The first days of the existence of Soviet power showed that for retaining the new order it was essential to have not only an army, a navy and state administrative bodies but also special forces for preventing counterrevolutionary actions inside the nation and for combating these, for establishing and maintaining revolutionary order on the spot, for guarding important facilities, enterprises and railroads, for convoying and guarding counterrevolutionary elements, criminals and for carrying out other tasks.

The process of establishing the interior troops took up all of 1918 and a part of 1919. Some 35 battalions were constituted as part of the VChK [All-Russian Extraordinary Commission] corps on the territory of the military districts. The number of troops changed as units were sent to the front. In 1919, this was 22,000 fighters.(2)

At this time, other auxiliary troops were also constituted and these carried out important tasks in defending the nation's rear. These included: the food army, the convoy army as well as units protecting railroads, waterways and certain other facilities. By June 1919, these troops numbered over 260,000 men.(3) Their major shortcoming was isolation and at times a lack of

coordination in their actions as well as different types of organizational structure. The question arose of unifying the auxiliary troops.

The VChK was the initiator of unification. On 28 May 1919, after an investigation of the auxiliary troops by a commission of the Higher Military Inspectorate, V.I. Lenin signed the Decree of the Council of Worker-Peasant Defense "On the Auxiliary Troops."(4) The troops which then became the Troops for the Internal Security of the Republic (VOKhR), in addition to the VChK units, included units from the People's Inspectorate of Food, Glavvod [Main Water Administration], Glavsakhar [Main Sugar Administration], Glavneft [Main Oil Administration], Tsentrtekstil [Central Textile Administration] and others. They were all subordinate to the People's Commissariat of Internal Affairs [NKVD]. Later also transferred to it were the units involved in guarding and defending railroads as well as convoy escorts. This major event was an exceptionally important stage in the activities of V.I. Lenin and the Communist Party in establishing the interior troops of the Soviet state.

Initially, K.M. Valobuyev, a former colonel in the Old Army who had come over to the side of Soviet power was appointed the chief of the interior troops. Subsequently, the position was introduced of the deputy people's commissar for internal affairs for the command of the troops. On 16 April 1920, the Labor and Defense Council appointed the experienced party and military worker and member of the VTsIK [All-Russian Central Executive Committee], V.S. Kornev, to this position. In October 1919, the military council of the VOKhR was established with the People's Commissar of Internal Affairs F.E. Dzerzhinskiy as its chairman.

On 1 September 1920, V.I. Lenin signed the decree of the Labor and Defense Council in accord with which on the basis of the VOKhR and the other troops, the Troops for the Interior Service of the Republic (VNIS) were organized. On 19 January 1921, these were transferred to the military department with the exception of the units serving the extraordinary commissions as well as the railroad and water militia which were under the VChK.

During the years of the Civil War, the interior troops made a substantial contribution to combating the counterrevolution and banditry. They were also involved in guarding important installations for the young Soviet republic and providing the population with food. In addition, they often took a direct part in fighting against the White Guards and interventionists. Just in 1919, around 100,000 soldiers and commanders from the interior troops left for the front. "In our VOKhR," pointed out F.E. Dzerzhinskiy, "as of now one-third should always be on the fronts."(5)

With the end of the Civil War and the transition to peacetime socialist construction, the nature of the tasks and, consequently, the organizational forms of the interior troops changed. In February 1922, they became the troops of the State Political Directorate (GPU), and in November 1923, the troops of the United State Political Directorate (OGPU). The food army was abolished. The peacetime conditions made it possible to move from military security for various installations to civilian. In 1922-1923, the number of interior troops declined significantly.

In November 1926, in the aim of improving leadership over the troops of the OGPU, the Main Directorate of Border Security and Troops of the OGPU (GPU i VOGPU) was established.

The successes of socialist industrialization in the nation at the end of the 1920s and the beginning of the 1930s caused furious anger among the enemies of Soviet power. The counterrevolutionary organizations intensified their subversive activities. In this situation the Soviet government found it necessary to entrust the security of the important national economic and defense installations to the interior troops. From 1927 on, they began constituting units for guarding major industrial installations as part of the OGPU troops, and from 1931, also for railroad facilities.

The concluding of the socialist reconstruction of the national economy placed new demands on the work of all elements of the state apparatus, including the bodies involved in state security and the maintaining of public order. On 10 July 1934, the USSR TsIK [Central Executive Committee] adopted a decree on forming the all-Union People's Commissariat of Internal Affairs with the incorporation of the OGPU into it. The newly created people's commissariat was entrusted with the tasks of ensuring revolutionary order and state security, guarding public (socialist) property, keeping vital statistics, border security as well as running and guarding the corrective labor facilities.

By the end of the 1930s, there was a need to reorganize the management of the NKVD troops. This was caused by the constantly increasing amount of tasks carried out by them, as well as by the diverse nature and difficult controllability of the troops. In March 1939, the Main Directorate of Border and Interior Troops of the NKVD was split into six independent main directorates: the Main Directorate of Border Troops, the Main Directorate of NKVD Troops for Guarding Important Industrial Enterprises, the Main Directorate of NKVD Convoy Troops, the Main Directorate of NKVD Troops for Guarding Railroad Facilities, the Main Directorate of Military Supply of the NKVD and the Main Military Construction Directorate of the USSR NKVD Troops. In line with this the position was founded of the USSR Deputy People's Commissar of Interior Affairs for the Troops and during different years this was filled by Gens I.I. Maslennikov, A.N. Apollonov and S.N. Perevertkin.

The new law passed on 1 September 1939 concerning universal military service strengthened the notion that the interior troops were a component part of the Soviet Armed Forces.

The period of the Great Patriotic War was a vivid page in the heroic history of the interior troops. The war made adjustments in their practical employment. The number of troops increased sharply while their tasks changed in accord with the demands of wartime. Along with ensuring frontline conditions in the rear of the operational army and combating enemy assault troops, saboteurs and bourgeois-nationalistic bands, the interior troop units and formations took a direct part in fighting against the Nazi invaders. (6)

In the aim of increasing effectiveness in the combat work of the bodies and troops in carrying out measures aimed at ensuring the state security of our

motherland, the interior troops (the operational units) upon a decision of our government in January 1947 were transferred from under the USSR Ministry of Internal Affairs to the USSR Ministry of State Security.

On 10 March 1953, by a decree of the CPSU Central Committee, the Presidium of the USSR Supreme Soviet and the USSR Council of Ministers, the Ministry of Internal Affairs and the Ministry of State Security were united into the single USSR Ministry of Internal Affairs. On 13 March 1954, the State Security Committee under the USSR Council of Ministers was organized. The border troops became subordinate to it while the formations and units of the interior and convoy security remained as part of the USSR Ministry of Internal Affairs.

On 13 January 1960, the USSR Ministry of Internal Affairs was abolished and its functions were turned over to the Union republic ministries of internal affairs. On 1 April 1960, the Main Directorate of Internal and Convoy Troops ceased its activities.

The founding in 1966 of the Union republic ministry for protecting public order of the USSR (MOOP SSSR) played an important role in strengthening legality and law and order. Within it there was formed the Main Directorate of Internal Troops, internal and convoy security and this began to direct the interior troops on the territory of the entire nation. This helped greatly in strengthening the troops and gave them an ordered organizational structure and a unity of command.

As a result of the concern shown by the party and the government, the years which passed since the establishing of the MOOP SSSR (on 25 November 1968, on the basis of the Ukase of the Presidium of the USSR Supreme Soviet, this began to be called the USSR Ministry of Internal Affairs), (7) was one of the most fruitful periods in the development of the interior troops.

The establishing in 1971 of the military council of these troops was an important measure of the Communist Party and the Soviet government aimed at strengthening the interior troops. The establishing of a political directorate on 2 November 1966 was a manifestation of the concern of the CPSU Central Committee for further improving party political work in the interior troops.

Thus, the place and role of the interior troops in the system of the Soviet state have been determined by the fact that they, along with other bodies, are directly involved in exercising the functions of protecting socialist law and order.

The tasks and size of the interior troops have changed repeatedly depending upon the degree of maturity in socialist social relations as well as upon foreign political conditions. The general trend of these changes has been that in keeping with the socioeconomic and political victories of socialism, the sphere of employing the interior troops has narrowed. However, the tasks carried out by them are vitally important for the socialist society and for this reason the CPSU and the Soviet government have been constantly concerned

for the further organizational improvement of the interior troops, for raising their combat capability and strengthening military discipline.

FOOTNOTES

1. K. Marx and F. Engels, "Soch." [Works], Vol 7, p 518.
2. "Vnutrenniye voyska Sovetskoy respubliki 1917-1922 gg." [Interior Troops of the Soviet Republic 1917-1922], Moscow, Yuricheskaya literatura, 1972, pp 5, 82.
3. Ibid., p 113.
4. "Dekrety Sovetskoy vlasti" [Decrees of Soviet Power], Moscow, Politizdat, Vol 5, 1 April-31 July 1919, 1971, pp 508-510.
5. P.G. Sofinov, "Ocherki istorii Vserossiyskoy Cherzvychaynoy komissii 1917-1922 gg." [Essays From the History of the All-Russian Extraordinary Commission 1917-1922], Moscow, Gospolitizdat, 1960, p 155.
6. For more detail on this period, see: VOYENNO-ISTORICHESKIY ZHURNAL, No 9, 1985.
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